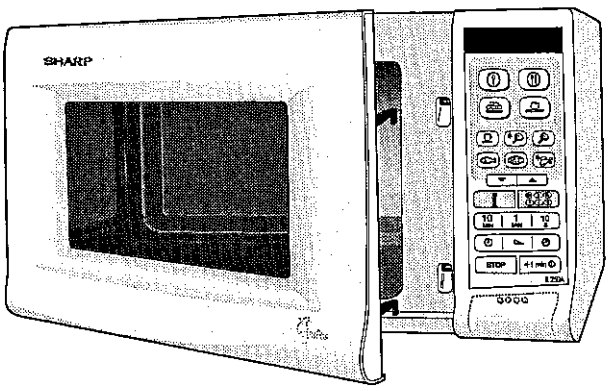
SHARP® SERVICE MANUAL

S6770R250AEHW



R-250A

MICROWAVE OVEN

MODELS

R-250A(B)
R-250A(W)

In interests of user-safety the oven should be restored to its original condition and only parts identical to those specified should be used.

TABLE OF CONTENTS

	Page
CAUTION, MICROWAVE RADIATION	01
GENERAL IMPORTANT INFORMATION, WARNING	01
SERVICING	02
PRODUCT SPECIFICATIONS	05
APPEARANCE VIEW	06
OPERATION SEQUENCE	07
FUNCTION OF IMPORTANT COMPONENTS	08
TEST PROCEDURE	10
TOUCH CONTROL ASSEMBLY	20
SERVICING	24
COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE	25
MICROWAVE MEASUREMENT	28
WIRING/RE-WIRING	29
TEST DATA AT A GLANCE	29
WIRING DIAGRAM	30
PICTORIAL DIAGRAM	31
CONTROL PANEL CIRCUIT	32
PRINTED WIRING DIAGRAM	33
PARTS LIST	34
PACKING AND ACCESSORIES	39

SHARP CORPORATION

SERVICE MANUAL

SHARP

MICROWAVE OVEN

R-250A(W) / R-250A(B)

GENERAL IMPORTANT INFORMATION

This Manual has been prepared to provide Sharp Corp. Service Engineers with Operation and Service Information.

It is recommended that service engineers carefully study the entire text of this manual, so they will be qualified to render satisfactory customer service.

Note:	The parts marked "*" are used at voltage more than 250V. (Parts List)
Anm:	Delar märket med "*" har en spänning överstigande 250V.
Huom:	Huolto-ohjeeseen merkitty. "tähdella" osat joissa jännite on yli 250V.
Bemerk:	Deler som er merket "asterisk" er utsatt for spenninger over 250V til jord.
Bemærk:	Dele mærket med stjerne benyttes med hojere spænding end 250 volt.

WARNING

Never operate the oven until the following points are ensured.
(A) The door is tightly closed.
(B) The door and oven hinges are not defective.
(C) The door packing is not damaged.
(D) The door is not deformed or warped.
(E) There is not any other visible damage with the oven.

Servicing and repair work must be carried out only by trained Service Engineers.

All the parts marked "*" on parts list are used at voltages more than 250V.

Removal of the outer wrap gives access to potentials above 250V.

All the parts marked "Δ" on the parts list may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

SERVICING
PRODUCT SPECIFICATION / GENERAL INFORMATION
APPEARANCE VIEW / CONTROL PANEL
OPERATING SEQUENCE
FUNCTION OF IMPORTANT COMPONENTS
TEST PROCEDURE
TOUCH CONTROL
COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE
MICROWAVE MEASUREMENT TEST DATA AT A GLANCE
WIRING DIAGRAM
PARTS LIST / EXPLODED VIEWS
PACKING & ACCESSORIES

SHARP CORPORATION
OSAKA, JAPAN

SERVICING

WARNING TO SERVICE PERSONNEL

(GB) Microwave ovens contain circuitry capable of producing very high voltage and current, contact with the following parts will result in electrocution.
High voltage capacitor, Power transformer, Magnetron, High voltage rectifier, High voltage harness.

REMEMBER TO CHECK 3D

1) Disconnect the supply.
2) Door opened, and wedged open.
3) Discharge high voltage capacitor.

WARNING AGAINST THE CHARGE OF THE HIGH-VOLTAGE CAPACITOR
The high-voltage capacitor remains charged about 60 seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is, of the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

Sharp recommend that wherever possible fault-finding is carried out with the supply disconnected. It may in, some cases, be necessary to connect the supply after the outer case has been removed, in this event carry out 3D checks and then disconnect the leads to the primary of the power transformer. Ensure that these leads remain isolated from other components and the oven chassis. (Use insulation tape if necessary.) When the testing is completed carry out 3D checks and reconnect the leads to the primary of the

REMEMBER TO CHECK 4R

1) Reconnect all leads removed from components during testing.
2) Replace the outer case (cabinet).
3) Reconnect the supply.
4) Run the oven. Check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out 3D checks and re-examine the connections to the component being tested.

When all service work is completed, and the oven is fully assembled, the microwave power output should be checked and a microwave leakage test carried out.

(NL) Magnetronovens bevatten circuits die een zeer hoge spanning en stroom kunnen voortbrengen. Contact met de volgende onderdelen kan elektrocutie tot gevolg hebben.
Hoogspanningscondensator, hoogspanningstransformator, magnetron, hoogspanningsgelijkrichter, hoogspannings kabelboom.

VERGEET DE VOLGENDE 3 STAPPEN NIET

1) Haal de stekker uit het stopcontact.
2) Open de deur en zorg ervoor dat hij niet dicht kan vallen.
3) Ontlaad de hoogspanningscondensator.

PAS OP VOOR DE ELECTRISCHE LADING VAN DE HOOGSPANNINGSCONDENSATOR
De hoogspanningscondensator blijft nog ongeveer 60 seconden lang opgeladen, nadat de oven is uitgeschakeld. Wacht 60 seconden voordat u de verbinding van de hoogspannings-condensator (m.a.w. de verbindingsdraad van de hoogspanningsgelijkrichter) met een geïsoleerde schroevedraaier kortsluit tegen het chassis.

Sharp beveelt ten sterkste aan dat, voor zover mogelijk, defecten worden opgespoord wanneer de stekker uit het stopcontact is gehaald. Soms is het nodig om de stroomtoevoer weer tot stand te brengen nadat de buitenmantel verwijderd is. Herhaal dan de bovengenoemde 3 stappen en haal de electrische draden uit deprimaire zijde vande vermogenstransformator. Zorg ervoor dat deze draden geïsoleerd blijven van andere elementen en van het chassis van de oven. (Gebruik zo nodig isolatieband.) Wanneer de test is uitgevoerd, herhaalt u de bovenstaande 3 stappen en verbindt u de electrische draden weer aan de primaire zijde van de vermogenstransformator.

VERGEET DE VOLGENDE 4 STAPPEN NIET

1) Sluit de draden weer aan diezijn losgehaald voor de test.
2) Plaats de buitenmantel weer om het toestel heen (kabinet).
3) Stop de stekker weer in het stopcontact.
4) Zet de oven aan. Controleer alle functies.

Magnetronovens mogen niet leeg aangezet worden. Om te controleren of er microgolf-energie binnen de oven wordt geproduceerd, plaatst u een mok met koud water op de draaitafel van de oven, sluit de deur, zet de oven op HIGH en stelt de klok van de magnetron in op twee (2) minuten. Wanneer de twee minuten voorbij zijn (klok staat op nul), controleert u voorzichtig of het water heet is. Indien het water nog steeds koud is, herhaalt u de allereerste drie stappen en controleer nogmaals de aansluitingen naar de geteste onderdelen.

Wanneer alle reparaties zijn uitgevoerd en de oven weer in elkaar is gezet, moet de het magnetronvermogen worden gecontroleerd en moet worden gecontroleerd of er geen microgolflekkage is.

SERVICING

(E) Los hornos de microondas contienen circuitos eléctricos capaces de producir voltajes de alta tensión y descargas eléctricas. Para evitar el riesgo de electrocución, absténgase de tocar los siguientes componentes: condensador de alta tensión, transformador de alta tensión, magnetrón, dispositivo del rectificador de alta tensión y arnés de alta tensión.

RECUERDE LA COMPROBACION 3D

1) Desconecte la alimentación.
2) Deje la puerta abierta y calzada.
3) Descargue el condensador de alto voltaje.

ADVERTENCIA SOBRE LA CARGA DEL CONDENSADOR DE ALTO VOLTAJE
El condensador de alto voltaje permanece cargado unos 60 segundos después de haber apagado el horno. Espere 60 segundos y luego ponga en cortocircuito la conexión del condensador de alto voltaje (esto es, del conductor de conexión del rectificador de alto voltaje) al chasis con un destornillador de mango aislado.

Se recomienda encarecidamente que siempre que sea posible la localización de fallos se realice con la alimentación desconectada. Puede ser que en algunos casos sea necesario conectar la alimentación después de haber retirado la carcasa exterior. En este caso, realice las comprobaciones 3D y luego desconecte los conductores del primario del transformador de alimentación. Asegúrese de que estos conductores permanezcan aislados de otros componentes y del chasis del horno. (Use cinta aislante si es necesario). Cuando termine la prueba efectúe las comprobaciones 3D y reconecte los conductores al primario del transformador de alimentación.

RECUERDE LA COMPROBACION 4C

1) Conecte todos los componentes desconectados de los componentes durante la prueba.
2) Coloque la carcasa exterior (cabina).
3) Conecte la alimentación.
4) Compruebe todas sus funciones despues de poner en marcha el horno.

Los hornos de microondas no deben funcionar vacíos. Para comprobar la presencia de energía de microondas dentro de una cavidad, coloque una taza de agua fría en el plato giratorio del horno, cierre la puerta y ponga la potencia en HIGH (alta) y coloque el temporizador en dos (2) minutos. Cuando transcurran los dos minutos (temporizador a cero) compruebe cuidadosamente que el agua se ha calentado. Si el agua permaneciese fría, efectúe las comprobaciones 3D y vuelva a examinar las conexiones de los componentes que han sido probados.

Cuando haya terminado la intervención en el equipo y el horno haya sido ensamblado de nuevo completamente, deberá comprobar la potencia de salida de microondas y realizar una prueba de fugas de microondas.

(SV) Mikrovågsugnar innehåller kretsar som producerar mycket höga spänningar och strömmar.
Kontakt med följande komponenter kan leda till dödsfall:
Högspänningskondensator, transformator, magnetron, högspännings likriktare, högspännings kablage.

KOM IHÅG ATT KONTROLLERA 3 STEG

1) Koppla från strömkällan.
2) Öppna dörren på gänt.
3) Ladda ur högspänningskondensatorn.

VARNING FÖR LADDNINGEN I HÖGSPÄNNINGSKONDENSATORN

Högspänningskondensatorn är laddad i 60 sekunder efter det att ugnen stängts av. Vänta 60 sekunder och korislut sedan kondensatoms anslutning (dvs anslutningen till högspänningslikriktaren) till chassiet med hjälp av en isolerad skruvmejsel.

Sharp rekommenderar att felsökning sker med strömmen frånkopplad. Ibland kan det var nödvändigt att koppla på strömmen efter det att höljet avlägsnats, utför da 3 Steg kontrollen och koppla sedan från ledarna till transformatorns primärsida. Se till att ledarna är isolerade från andra komponenter och chassiet. (Använd isoleringsband om det behövs). När Du testat färdigt utför Du 3 Steg kontrollen och ansluter ledningarna till transformatorns primärsida igen.

KOM IHÅG ATT KONTROLLERA 4 STEG

1) Anslut alla ledningar som använts vid testning
2) Sätt tillbaka ytterhöljet.
3) Anslut strömkällan på nytt.
4) Sätt på ugnen. Kontrollera alla funktioner.

Mikrovågsugnar får inte användas tomma. Kontrollera mikrovågsstrålningen i olika delar av ugnen genom att placera en kopp med kallt vatten på ugnens tallrik, stäng dörren, ställ in HIGH och ställ in 2 minuter på timern. När två minuter har gått (timem visar 0) kontrollerar du om vattnet är varmt. Om vattnet fortfarande är kallt utför Du 3 steg kontroller och kontrollerar anslutningarna till varje enskild komponent på nytt.

När all service är klar och ugnen ihopskruvad skall ugnens uteffekt och eventuellt mikrovågsläckage kontrolleras.

SERVICING

(I) I forni a microonde contengono un circuito elettrico in grado di generare tensioni e correnti estremamente elevate. L'eventuale contatto con i seguenti componenti può causare la folgorazione:

condensatore ad alta tensione; trasformatore ad alta tensione; magnetron; rettificatore alta tensione; cablaggio ad alta tensione.

TRE OPERAZIONI IMPORTANTI PER INCOMINCIARE

1) Scollegare l'alimentazione elettrica.
2) Verificare che la porta sia bloccata in posizione aperta.
3) Scaricare il condensatore ad alta tensione.

ATTENZIONE AL CONDENSATORE AD ALTA TENSIONE: PUO ESSERE CARICO
Il condensatore ad alta tensione rimane carico per circa 60 secondi dopo lo spegnimento del forno. Occorre quindi spettare 60 secondi prima di cortocircuitare, utilizzando un cacciavite con impugnatura isolata, il collegamento del condensatore ad alta tensione (cioè del conduttore di collegamento del raddrizzatore ad alta tensione) sul telaio del forno.

Sharp raccomanda, nei limiti del possibile, che la ricerca dei guasti avvenga in assenza di alimentazione elettrica. In alcuni casi tuttavia, può essere necessario alimentare l'apparecchio dopo aver rimosso la scatola esterna. In questo caso eseguire i tre controlli sopra citati e quindi scollegare i connettori dal primario del trasformatore. Assicurarsi che tali connettori non vengano a contatto con altri componenti, ne con il telaio del forno (fare uso, se necessario, di nastro isolante). Al termine dell'intervento, eseguire nuovamente i tre controlli e ricollegare i conduttori al primario del trasformatore.

QUATTRO VERIFICHE IMPORTANTI DA NON DIMENTICARE

1) Ricollegare tutti i conduttori staccati dai vari componenti durante l'intervento.
2) Rimontare la scatola esterna.
3) Ripristinare l'alimentazione elettrica.
4) Rimettere in funzione il forno. Controllare tutte le funzioni.

I forni a microonde non devono mai funzionare a vuoto. Per verificare la presenza di energia da microonde all'interno di una cavitá, mettere una tazza di acqua fredda sul piatto rotante del forno, chiudere la porta, regolare la potenza su HIGH ed impostate il temporizzatore su due (2) minuti. Trascorsi i due minuti (temporizzatore a zero), controllare accuratamente che ora l'acqua sia calda. Se l'acqua è rimasta fredda, eseguire i tre controlli iniziali e verificare nuovamente i collegamenti del componente in questione.

Dopo aver portato a termine le operazioni di manutenzione e rimontato il forno, è necessario controllare la potenza delle microonde emesse ed eseguire un test per verificare che non vi sia alcuna dispersione.

When troubleshooting the microwave oven, it is helpful to follow the Sequence of Operation in performing the checks. Many of the possible causes of trouble will require that a specific test be performed. These tests are given a procedure letter which will be found in the "Test Procedure" section.

IMPORTANT: If the oven becomes inoperative because of a blown fuse F8A in the monitored latch switch - monitor switch circuit, check the monitored latch switch and monitor switch before replacing the fuse F8A.

PRODUCT SPECIFICATIONS

SPECIFICATION

ITEM	DESCRIPTION
Power Requirements	230 Volts 50 Hertz Single phase, 3 wire grounded
Power Consumption	1300 W
Power Output	800W watts nominal of RF microwave energy (measured by way of IEC 705) Operating frequency of 2450 MHz
Case Dimensions	Width 449mm Height 282mm including foot Depth 369mm
Cooking Cavity Dimensions	Width 290mm Height 194mm Depth 313mm
Turntable diameter	272mm
Control Complement	Touch Control System Clock(1:00-12:59 or 0:00-23:59) 12hr or 24hr setting Microwave Power for Variable Cooking Repetition Rate; HIGH — Full power throughout the cooking time MEDIUM HIGH — approx. 70% of Full Power MEDIUM — approx. 50% of Full Power MEDIUM LOW — approx. 30% of Full Power LOW — approx. 10% of Full Power AUTO MINUTE pad START pad POWER LEVEL pad STOP/CLEAR pad Time pads
Set Weight	Approx. 13.3 kg

GENERAL INFORMATION

WARNING

THIS APPLIANCE MUST BE EARTHED

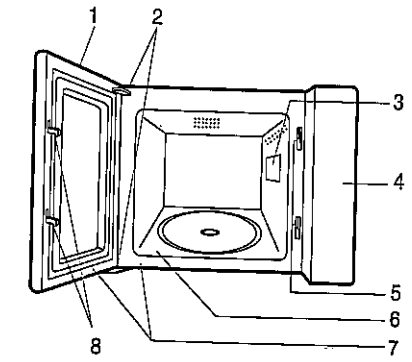
IMPORTANT

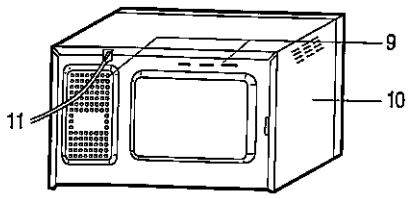
THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

GREEN-AND-YELLOW	: EARTH
BLUE	: NEUTRAL
BROWN	: LIVE

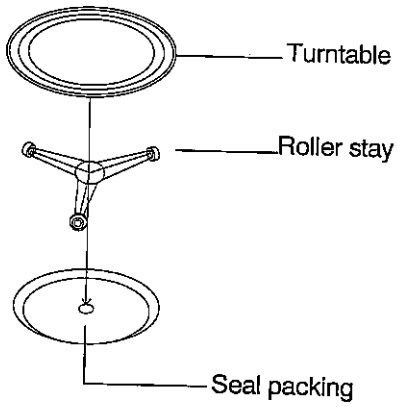
APPEARANCE VIEW

OVEN



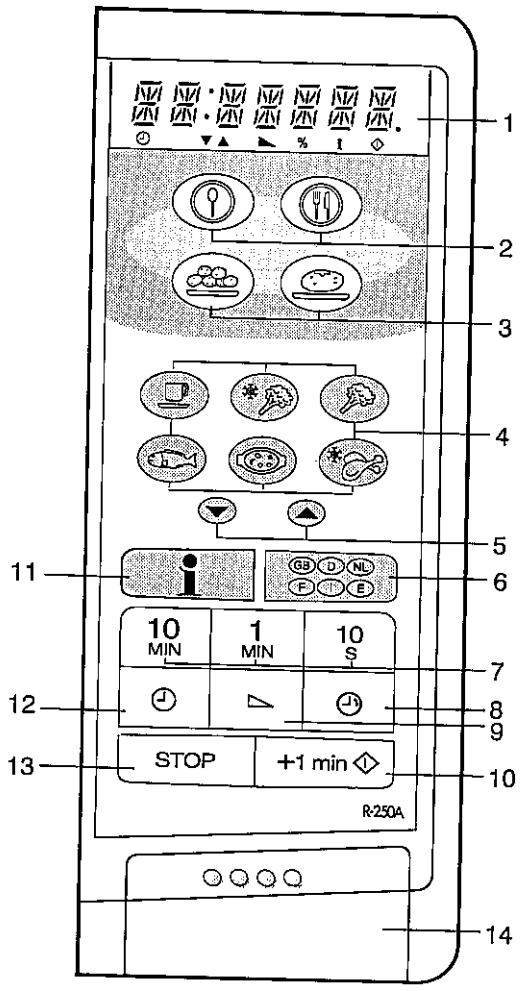


1. Door
2. Door hinges
3. Waveguide cover
4. Control panel
5. Door latch openings
6. Oven cavity
7. Door seals and sealing surfaces
8. Safety door latches
9. Ventilation openings
10. Outer case
11. Power supply cord



1. Place the roller stay on the floor of the oven cavity, fitting to the coupling.
2. Then place the turntable on the roller stay.

THE AUTO-TOUCH CONTROL PANEL



1. Digital display
2. Snack keys
3. Potato keys
4. Instant action keys
5. More/Less key
6. Language translation key
7. Time keys
8. Timer/Hold key
9. Power level key
10. Auto minute/Start key
11. Information key
12. Clock set key
13. Stop key
14. Door open button

OPERATING SEQUENCE

OFF CONDITION

Closing the door activates the door interlock switches (monitored latch switch and stop switch).

IMPORTANT
When the oven door is closed, the monitor switch contacts COM - NC must be open.
When the microwave oven is plugged in a wall outlet (230V 50Hz), the line voltage is supplied to the point A3+A5 in the control unit.

Figure O-1 on page 30

1. To set any programmes or set the clock, you must first touch the STOP pad.

NOTE: When the oven door is opened, the oven lamp comes on at this time.

MICROWAVE COOKING CONDITION

HIGH COOKING

Enter a desired cooking time with the touching Time pad and start the oven with touching START pad.

Function sequence Figure O-2 on page 30

CONNECTED COMPONENTS	RELAY
Oven lamp, Fan motor, Turntable motor	RY1
Power transformer	RY2

1. The line voltage is supplied to the primary winding of the power transformer. The voltage is converted to about 3.3 volts A.C. output on the filament winding and high voltage of approximately 2000 volts A.C. on the secondary winding.
2. The filament winding voltage (3.3 volts) heats the magnetron filament and the high voltage (2000 volts) is sent to the voltage doubling circuit, where it is doubled to negative voltage of approximately 4000 volts D.C.
3. The 2450 MHz microwave energy produced in the magnetron generates a wave length of 12.24 cm. This energy is channeled through the waveguide (transport channel) into the oven cavity, where the food is placed to be cooked.
4. When the cooking time is up, a single tone is heard and the relays RY1 + RY2 go back to their home position. The circuits to the oven lamp, power transformer, fan motor and turntable motor are cut off.
5. When the door is opened during a cook cycle, the switches come to the following condition.

		CONDITION	
SWITCH	CONTACT	DURING COOKING	DOOR OPEN (NO COOKING)
Monitor switch	COM-NC	Open	Closed
Monitored latch switch	COM-NO	Closed	Open
Stop switch	COM-NO	Closed	Open

The circuits to the power transformer, fan motor and turntable motor are cut off when the monitored latch switch and stop switch are made open.
The oven lamp remains on even if the oven door is opened after the cooking cycle has been interrupted, because the relay RY1 stays closed. Shown in the display is the remaining time.

6. MONITOR SWITCH CIRCUIT
The monitor switch (SW2) is mechanically controlled by oven door, and monitors the operation of the monitored latch switch (SW1)

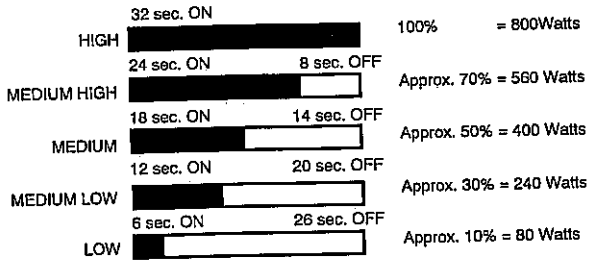
6-1 When the oven door is opened during or after the cycle of cooking program, the monitored latch switch (SW1), and stop switch (SW3) must open their contacts first. After that the contacts (COM - NC) of the monitor switch (SW2) can be closed.

6-2 When the oven door is closed, the contacts (COM - NC) of the monitor switch (SW2) must be opened first. Contacts (COM - NO) of the monitored latch switch (SW1) and the stop switch (SW3) are closed after.

6-3 When the oven door is opened and the contacts of the monitored latch switch (SW1) remain closed, the fuse (F) F8A will blow, because the monitor switch is closed and a short circuit is caused.

HIGH, MEDIUM HIGH, MEDIUM, MEDIUM LOW, LOW COOKING

When the microwave oven is preset for variable cooking power, the line voltage is supplied to the power transformer intermittently within a 32-second time base through the relay contact which is coupled with the current-limiting relay (RY2). The following levels of microwave power are given.
SETTING



NOTE: The ON/OFF time ratio does not exactly correspond to the percentage of microwave power, because approx. 3 seconds are needed for heating up the magnetron filament.

FUNCTION OF IMPORTANT COMPONENTS

DOOR OPEN MECHANISM

The door can be opened by pushing the door open button on the control panel. When the door open button is pushed, the cook lever is moved upward, operating the latch head. The latch head is moved upward, and released from the latch hook. Now, the door can be opened.

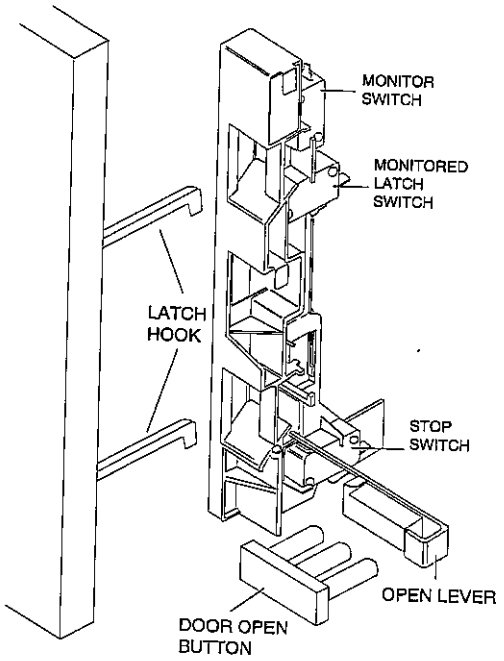


Figure D-1. Door Open Mechanism

MONITORED LATCH SWITCH (SW1) STOP SWITCH (SW3)

1. When the oven door is closed, the contacts (COM - NO) must be closed.
2. When the oven door is opened, the contacts (COM - NO) must be opened.

MONITOR SWITCH (SW2)

1. When the oven door is closed, the contacts (COM - NC) must be opened.
2. When the oven door is opened, the contacts (COM - NC) must be closed.
3. If the oven door is opened and the contacts (COM - NO) of the monitored latch switch (SW1) fail to open, the fuse F8A blows simultaneously with closing the contacts (COM - NC) of the monitor switch (SW2).

CAUTION: BEFORE REPLACING A BLOWN FUSE (F) F8A TEST THE MONITORED LATCH SWITCH (SW1) AND MONITOR SWITCH (SW2) FOR PROPER OPERATION. (REFER TO CHAPTER "TEST PROCEDURE".)

FUSE F8A

1. The fuse F8A blows when the contacts (COM - NO) of the monitored latch switch (SW1) remain closed with the oven door open and when the monitor switch (SW2) closes.
2. The fuse F8A also blows when the H.V. rectifer, H.V. wire harness, H.V. capacitor, magnetron or secondary winding of power transformer is shorted.
3. If the wire harness or electrical components are short-circuited, the fuse F8A blows to prevent an electric shock or fire hazard.

HVT THERMOSTAT 150°C

The thermostat protects the magnetron against overheat. If this temperature goes up higher than 150°C because the fan motor is interrupted, the ventilation openings are blocked, the thermostat will open and line voltages to the power transformer will cycle and the operation of the magnetron will also cycle.

THERMAL CUT-OUT 125°C TC2 (OVEN)

The thermal cut-out located on the top of the oven cavity is designed to prevent damage to the oven if the foods in the oven catch fire due to over heating produced by improper setting of cook time or failure of control unit. Under normal operation, the oven thermal cut-out remains closed. However, when abnormally high temperatures are reached within the oven cavity, the oven thermal cut-out will open at 125°C, causing the oven to shut down. The defective thermal cut-out (TC2) must be replaced with new one.

TURNTABLE MOTOR

The turntable motor drives the turntable roller assembly to rotate the turntable.

FAN MOTOR

The fan motor drives a blade which draws external cool air. This cool air is directed through the air vanes surrounding the magnetron and cools the magnetron. This air is channeled through the oven cavity to remove steam and vapours given off from the heating foods. It is then exhausted through the exhausting air vents at the oven cavity.

NOISE FILTER

The noise filter prevents the radio frequency interference that might flow back in the power circuit.

TEST PROCEDURE

TEST PROCEDURE		A	B	C	D	E	E	E	F	G	H	I	I	J
POSSIBLE CAUSE AND DEFECTIVE PARTS		MAGNETRON	POWER TRANSFORMER	HV. RECTIFIER	HV. CAPACITOR	MONITORED LATCH SWITCH	MONITOR SWITCH	STOP SWITCH	THERMAL CUT-OUT	FUSE F8A	NOISE FILTER	FAN MOTOR	TURNTABLE MOTOR	TOUCH CONTROL PANEL
CONDITION	PROBLEM													
OFF CONDITION	Home fuse blows when power cord is plugged into wall outlet.	○				○								
	Fuse F8A blows when power cord is plugged into wall outlet.			○	○	○				○				
	"88:88" dose not appear in display when power cord is plugged into wall outlet.		○							○				
	Display does not operate properly when STOP/CLEAR pad is touched.		○							○				
	Oven lamp does not light when door is opened. (Display appears.)		○							○				
COOKING CONDITION	Oven does not start when START pad is touched. (Display appears.)								○	○	○			
	Oven lamp does not light. (Display appears.)								○	○	○			
	Fan motor does not operate. (Display appears.)								○	○	○			
	Turntable motor assembly does not operate. (Display appears.)													
	Oven or electrical parts do not stop when cooking time is 0 or STOP pad is touched.	○	○		○	○					○			
	Oven seems to be operating but little or no heat is produced in oven load. (Microwave power level is set at "HIGH")				○	○								
	Oven does not operate properly during the variable cooking condition except "HIGH" cooking condition. (Oven stops when STOP pad is touched.)				○	○								
	Oven goes into cook cycle but shuts down before end of cooking cycle.				○	○								
	Oven stops as soon as the START pad is touched.													

TEST PROCEDURE

TEST PROCEDURE		K	L	M							
POSSIBLE CAUSE AND DEFECTIVE PARTS		KEY UNIT	ELAYS RY1 - RY2	FOIL PATTERN ON P.W.B	POWER SUPPLY CORD	OVEN LAMP AND SOCKET	SHORTED WIRE HARNESS	OPENED WIRE HARNESS	MISADJUSTMENT SWITCHES	NO POWER AT WALL OUTLET	HVT THERMOSTAT
	PROBLEM										
	Home fuse blows when power cord is plugged into wall outlet.				○		○				Δ
	Fuse F8A blows when power cord is plugged into wall outlet.						○		○		
	"88:88" dose not appear in display when power cord is plugged into wall outlet.			○	○			○		○	
	Display does not operate properly when STOP/CLEAR pad is touched.	○							○		
	Oven lamp does not light when door is opened. (Display appears.)		○			○		○	○		
CONDITION	Oven does not start when START pad is touched. (Display appears.)	○	○					○	○		
	Oven lamp does not light. (Display appears.)					○		○			
	Fan motor does not operate. (Display appears.)		○					○			
	Turntable motor assembly does not operate. (Display appears.)		○					○			
	Oven or electrical parts do not stop when cooking time is 0 or STOP pad is touched.		○								
	Oven seems to be operating but little or no heat is produced in oven load. (Microwave power level is set at "HIGH")		○					○	○		○
	Oven does not operate properly during the variable cooking condition except "HIGH" cooking condition. (Oven stops when STOP pad is touched.)		○								
	Oven goes into cook cycle but shuts down before end of cooking cycle.								○		○
	Oven stops as soon as the START pad is touched.					○					○

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST
A	**MAGNETRON TEST**

NEVER TOUCH ANY PART IN THE CIRCUIT WITH YOUR HAND OR AN INSULATED TOOL WHILE THE OVEN IS IN OPERATION.

CARRY OUT 3D CHECK

Isolate the magnetron from high voltage circuit by removing all leads connected to the filament terminal.

To test for an open circuit filament use an ohmmeter to make a continuity test between the magnetron filament terminals, the meter should show a reading of less than 1 ohm.

To test for a short filament to anode condition, connect ohmmeter between one of the filament terminals and the case of the magnetron (ground). This test should be indicated an infinite resistance. If a low or zero resistance reading is obtained then the magnetron should be replaced.

MICROWAVE OUTPUT POWER (IEC-705-1988)
The following test procedure should be carried out with the microwave oven in a fully assembled condition (outer case fitted). Microwave output power from the magnetron can be measured by way of IEC 705. To measure the microwave output power in the microwave oven, the relation of calorie and watt is used. When P(W) heating works for t(second), approximately P x t/4.187 calorie is generated. On the other hand, if the temperature of the water with V(ml) rises ΔT (°C) during this microwave heating period, the calorie of the water is V x ΔT.

The formula is as follows;
$P \times t / 4.187 = V \times \Delta T$ $P\ (W) = 4.187 \times V \times \Delta T / t$
Our condition for water load is as follows:
Room temperature.....around 20°C Power supply Voltage.....Rated voltage
Water load.....1000 g Initial temperature.....10 ± 2°C Heating time.....52 sec.
$P = 80 \times \Delta T$

Measuring condition:
1. Container
   The water container must be a cylindrical borosilicate glass vessel having a maximum material thickness of 3 mm and an outside diameter of approximately 190 mm.
2. Temperature of the oven and vessel
   The oven and the empty vessel are at ambient temperature prior to the start of the test.
3. Temperature of the water
   The initial temperature of the water is (10 ± 2)°C.
4. Select the initial and final water temperature so that the maximum difference between the final water temperature and the ambient temperature is 5K.
5. Select stirring devices and measuring instruments in order to minimize addition or removal of heat.
6. The graduation of the thermometer must be scaled by 0.1°C at minimum and an accurate thermometer.
7. The water load must be (1000 ± 5) g.
8. "t" is measured while the microwave generator is operating at full power. Magnetron filament heat-up time is not included.

NOTE: The operation time of the microwave oven is "t + 3" sec. 3 sec. is magnetron filament heat-up time.

Measuring method:
1. Measure the initial temperature of the water before the water is added to the vessel.
   (Example: The initial temperature T1 = 11°C)
2. Add the 1 litre water to the vessel.
3. Place the load on the centre of the shelf.
4. Operate the microwave oven at HIGH for the temperature of the water rises by a value Δ T of (10 ± 2) K.
5. Stir the water to equalize temperature throughout the vessel.

TEST PROCEDURES

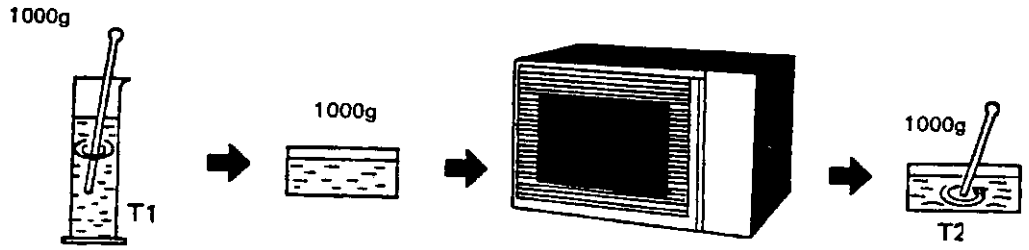
PROCEDURE LETTER — COMPONENT TEST

6. Measure the final water temperature. (Example: The final temperature T2 = 21°C)
7. Calculate the microwave power output P in watts from above formula.

Initial temperature	T1 = 11°C
Temperature after (52 + 3) = 55 sec.	T2 = 21°C
Temperature difference Cold-Warm	ΔT = 10°C
Measured output power	
The equation is "P "= 80 x ΔT"	P = 80 x 10°C = 800 Watts

JUDGEMENT: The measured output power should be at least ± 15 % of the rated output power.

CAUTION: 1°C CORRESPONDS TO 80 WATTS. REPEAT MEASUREMENT IF THE POWER IS INSUFFICIENT.



Heat up for 55 sec.

B — POWER TRANSFORMER TEST

WARNING: High voltages and large currents are present at the secondary winding and filament winding of the power transformer. It is very dangerous to work near this part when the oven is on. NEVER make any voltage measurements of the high-voltage circuits, including the magnetron filament.

CARRY OUT 3D CHECKS

Disconnect the leads to the primary winding of the power transformer. Disconnect the filament and secondary winding connections from the rest of the HV circuitry. Using an ohmmeter, set on a low range, it is possible to check the continuity of all three windings. The following readings should be obtained:-

a. Primary winding ..... 2.3 ohms approximately
b. Secondary winding ..... 114 ohms approximately
c. Filament winding ..... less than 1 ohm

If the reading obtained are not stated as above, then the power transformer is probably faulty and should be replaced.

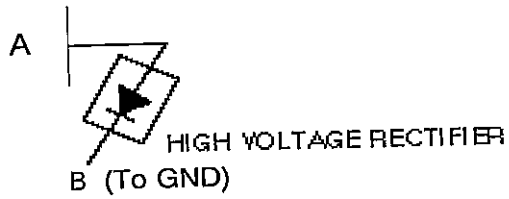
CARRY OUT 4R CHECKS

TEST PROCEDURES

PROCEDURE LETTER | **COMPONENT TEST**

C **HIGH VOLTAGE RECTIFIER TEST**

CARRY OUT 3D CHECKS.



Isolate the high voltage rectifier from the HV circuit. The high voltage rectifier can be tested using an ohmmeter set to its highest range. Connect the ohmmeter across the terminal A + B of the high voltage rectifier and note the reading obtained. Reverse the meter leads and note this second reading. The normal resistance is infinite in one direction and more than 100 kΩ in the other direction.

CARRY OUT 4R CHECKS

NOTE: FOR MEASUREMENT OF THE RESISTANCE OF THE RECTIFIER, THE BATTERIES OF THE MEASURING INSTRUMENT MUST HAVE A VOLTAGE AT LEAST 6 VOLTS, BECAUSE OTHERWISE AN INFINITE RESISTANCE MIGHT BE SHOWN IN BOTH DIRECTIONS.

D **HIGH VOLTAGE CAPACITOR TEST**

CARRY OUT 3D CHECKS

A. Isolate the high voltage capacitor from the circuit.
B. Continuity check must be carried out with measuring instrument which is set to the highest resistance range.
C. A normal capacitor shows continuity for a short time (kick) and then a resistance of about 10 MΩ after it has been charged.
D. A short-circuited capacitor shows continuity all the time.
E. An open capacitor constantly shows a resistance about 10 MΩ because of its internal 10 MΩ resistance.
F. When the internal wire is opened in the high voltage capacitor, the capacitor shows an infinite resistance.
G. The resistance across all the terminals and the chassis must be infinite when the capacitor is normal.

If incorrect reading are obtained, the high voltage capacitor must be replaced.

CARRY OUT 4R CHECKS

E **SWITCH TEST**

CARRY OUT 3D CHECKS

Isolate the switch to be tested and using an ohmmeter check between the terminals as described in the following table.

Table: Terminal Connection of Switch

Plunger Operation	COM to NO	COM to NC
Released	Open circuit	Short circuit
Depressed	Short circuit	Open Circuit

COM; Common terminal
NO; Normally open terminal
NC; Normally close terminal

If incorrect readings are obtained, make the necessary switch adjustment or replace the switch.

CARRY OUT 4R CHECKS.

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST

F THERMAL CUT-OUT TEST

CARRY OUT 3D CHECKS

Disconnect the leads from the terminals of the thermal cut-out. Then using an ohmmeter, make a continuity test across the two terminals as described in the below.

CARRY OUT 4R CHECKS

Temperature of "ON" condition (closed circuit) ..... This is not resetable type
Temperature of "OFF" condition (open circuit) ..... Above 125°C
Indication of ohmmeter (When room temperature is approx. 20°C.) ..... Closed circuit

If incorrect readings are obtained replace the oven thermal cut-out.

An open circuit thermal cut-out (OVEN) indicates that the foods in the oven may have caught fire, this may be due to over heating produced by improper setting of the cooking timer or failure of the control panel.

G BLOWN FUSE F8A

CARRY OUT 3D CHECKS

1. If the fuse F8A is blown, there could be shorts or grounds in electrical parts or wire harness. Check them and replace the defective parts or repair the wire harness.

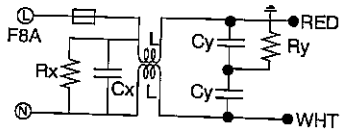
2. If the fuse F8A is blown when the door is opened, check the monitored latch switch and monitor switch.
   If the fuse F8A is blown by incorrect door switch replace the defective switch (s) and the fuse F8A.

CARRY OUT 4R CHECKS

CAUTION: Only replace special fuse F8A with the correct value replacement.

H NOISE FILTER TEST

CARRY OUT 3D CHECKS



Disconnect the leads from the terminals of the noise filter.
Using an ohmmeter, check between the terminals as described in the following table.

Rx±5%	L(min)	Cx ± 20%	Cy ± 20%	Ry±5%
680kΩ	1.0mH	0.22μF	0.0033μF	10MΩ

MEASURING POINTS	INDICATION OF OHMMETER
Between N and L	Open circuit
Between terminal N and WHITE	Short circuit
Between terminal L and RED	Short circuit

.ssp If incorrect readings are obtained, replace the noise filter unit.

CARRY OUT 4R CHECKS

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST
I	**MOTOR WINDING TEST**

CARRY OUT 3D CHECKS

Disconnect the leads from the motor. Using an ohmmeter, check the resistance between the two terminals as described in the table below.

Table: Resistance of Motor

Motors	Resistance
Fan motor	Approximately 360Ω
Turntable motor	Approximately 12kΩ

If incorrect readings are obtained, replace the motor. (Also refer to test procedure K)

CARRY OUT 4R CHECKS

I	**LIVE TEST FOR MOTOR WINDINGS**

CAUTION: The following procedure requires the oven to be connected to the supply and should only be used if the relevant "cold" checks for the motor under test are inconclusive.

1. CARRY OUT 3D CHECKS
2. Disconnect the leads from the primary of the power transformer. Make sure that the leads remain isolated from other oven components and chassis. (Use insulation tape if necessary.)
3. Connect a voltmeter, set to 250V AC, across the motor terminals. (Refer to the relevant motor test procedure or pictorial diagram for the correct terminal numbers.)
4. Arrange the meter in a position where it can be read during the test. (Do not touch the meter, meter leads or oven circuitry while the oven is active.)
5. Close the oven door.
6. Set the power level to HIGH and set the relevant timer for about three (3) minutes.
7. Note the reading on the meter and carefully observe the motor under test to see if it is turning.
8. CARRY OUT 3D CHECKS
9. Remove test meter leads.
10. Reconnect the leads to the primary of the power transformer.

If a reading of the line voltage was obtained (step 7) but the motor was not turning then it is faulty and should be replaced. If the meter indicated that no supply was present then the wiring to the motor should be checked for continuity.

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST
J	TOUCH CONTROL PANEL ASSEMBLY TEST

The touch control panel consists of circuits including semiconductors such as LSI, ICs, etc. Therefore, unlike conventional microwave ovens, proper maintenance cannot be performed with only a voltmeter and ohmmeter.
In this service manual, the touch control panel assembly is divided into two units, Control Unit and Key Unit, and troubleshooting by unit replacement is described according to the symptoms indicated.

1. Key Unit. Note : Check key unit ribbon connection before replacement.
   The following symptoms indicate a defective key unit. Replace the key unit.
   a) When touching the pads, a certain pad produces no signal at all.
   b) When touching a number pad, two figures or more are displayed.
   c) When touching the pads, sometimes a pad produces no signal.
2. Control Panel.
   The following symptoms indicate a defective control unit. Before replacing the control unit, perform the Key unit test (Procedure L) to determine if control unit is faulty.

2-1 In connection with pads.
   a) When touching the pads, a certain group of pads do not produce a signal.
   b) When touching the pads, no pads produce a signal.

2-2 In connection with indicators.
   a) At a certain digit, all or some segments do not light up.
   b) At a certain digit, brightness is low.
   c) Only one indicator does not light.
   d) The corresponding segments of all digits do not light up; or they continue to light up.
   e) Wrong figure appears.
   f) A certain group of indicators do not light up.
   g) The figure of all digits flicker.

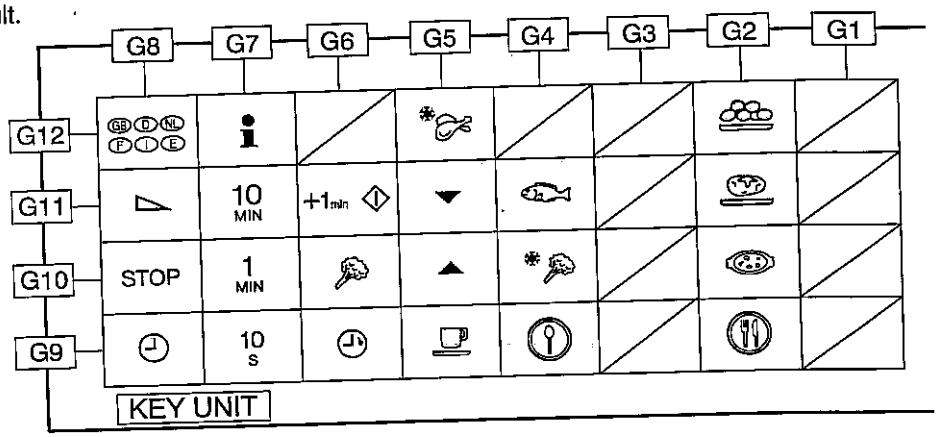
2-3 Other possible troubles caused by defective control unit.
   a) Buzzer does not sound or continues to sound.
   b) Clock does not operate properly.
   c) Cooking is not possible.

TEST PROCEDURES

PROCEDURE LETTER	COMPONENT TEST

K KEY UNIT TEST

If the display fails to clear when the STOP pad is depressed, first verify the flat ribbon cable is marking good contact, verify that the door sensing switch (stop switch) operates properly; that is the contacts are closed when the door is closed and open when the door is open. If the door sensing switch (stop switch) is good, disconnecct the flat ribbon cable that connects the key unit to the control unit and make sure the door sensing switch is closed (either close the door or short the door sensing switch connecter). Use the Key unit matrix indicated on the control panel schematic and place a jumper wire between the pins that correspond to the STOP pad marking momentary contact. If the control unit responds by clearing with a beep the key unit is faulty and must be replaced. If the control unit does not respond, it is a faulty and must be replaced. If a specific pad does not respond, the above method may be used (after clearing the control unit) to determine if the control unit or key pad is at fault.



L RELAY TEST

CARRY OUT 3D CHECKS.

Remove the outer case and check the voltage between Pin Nos. 3 and 5 of the 3 pin connector (A) on the control unit with an A.C. voltmeter.
The meter should indicate 230 volts, if not check oven circuit.

Relay Test
Check voltage at the relay coil with a D.C. voltmeter during the microwave cooking operation, convection cooking operation or grill operation.
DC. voltage indicated ..... Defective relay.
DC. voltage not indicated ..... Check diode which is connected to the relay coil. If diode is good, control unit is defective.

RELAY SYMBOL	OPERATIONAL VOLTAGE	CONNECTED COMPONENTS
RY1	APPROX. 24.0V D.C.	Oven lamp / Turntable motor / Fan motor
RY2	APPROX. 18.0V D.C.	High voltage transformer

CARRY OUT 4R CHECKS.

TEST PROCEDURES

PROCEDURE LETTER — COMPONENT TEST

M

PROCEDURES TO BE TAKEN WHEN THE FOIL PATTERN ON THE PRINTED WIRING BOARD (PWB) IS OPEN

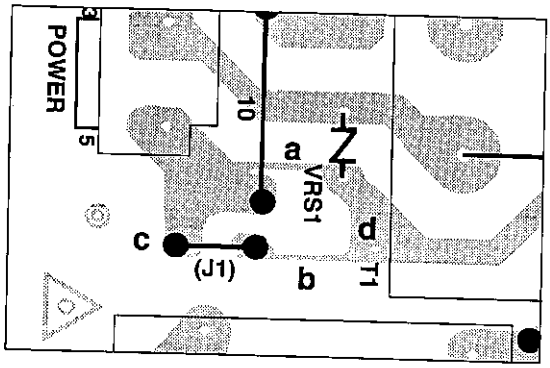
To protect the electronic circuits, this model is provided with a fine foil pattern added to the primary on the PWB, this foil pattern acts as a fuse. If the foil pattern is open, follow the troubleshooting guide given below for repair.

Problem: POWER ON, indicator does not light up.

CARRY OUT 3D CHECKS.

STEPS	OCCURANCE	CAUSE OR CORRECTION
1	The rated AC voltage is not present at POWER terminal of CPU connector (CN-A).	Check supply voltage and oven power cord.
2	The rated AC voltage is present at primary side of low voltage transformer.	Low voltage transformer or secondary circuit defective. Check and repair.
3	Only pattern at "a" is broken.	*Insert jumper wire J1 and solder. (CARRY OUT 3D CHECKS BEFORE REPAIR)
4	Pattern at "a" and "b" are broken.	*Insert the coil RCILF2003YAZZ between "c" and "d". (CARRY OUT 3D CHECKS BEFORE REPAIR)

NOTE: *At the time of these repairs, make a visual inspection of the varistor for burning damage and examine the transformer with tester for the presence of layer short-circuit (check primary coil resistance). If any abnormal condition is detected, replace the defective parts.



CARRY OUT 4R CHECKS.

TOUCH CONTROL PANEL

OUTLINE OF TOUCH CONTROL PANEL

The touch control section consists of the following units as shown in the touch control panel circuit.

(1) Key Unit
(2) Control Unit

The principal functions of these units and the signals communicated among them are explained below.

Key Unit
The key unit is composed of a matrix, signals generated in the LSI are sent to the key unit through P60, P62-P66. When a key pad is touched, a signal is completed through the key unit and passed back to the LSI through P70-P73 to perform the function that was requested.

Control Unit
Control unit consists of LSI, power source circuit, synchronizing signal circuit, ACL circuit, buzzer circuit temperature measurement circuit and indicator circuit.

1) LSI
This LSI controls the temperature measurement signal, key strobe signal, relay driving signal for oven function and indicator signal.

2) Power Source Circuit
This circuit generates voltages necessary in the control unit.

Symbol	Voltage	Application
VC	-5.1V	LSI(IC1)
VP	-28V	Fluorescent display tube : Grid and anode voltage
VF1	2.2Vac	Filament of fluorescent display tube
VF2		(VF1 to VF2 voltage)

3) Synchronizing Signal Circuit
The power source synchronizing signal is available in order to compose a basic standard time in the clock circuit. It accompanies a very small error because it works on commercial frequency.

4) ACL Circuit
A circuit to generate a signals which resets the LSI to the initial state when power is supplied.

5) Buzzer Circuit
The buzzer is responsive to signals from the LSI to emit audible sounds (key touch sound and completion sound).

6) Door Sensing Switch (Stop Switch)
A switch to "tell" the LSI if the door is open or closed.

7) Relay Circuit
To drive the magnetron, fan motor, turntable motor and light the oven lamp.

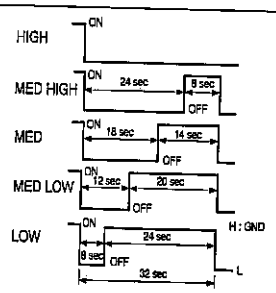
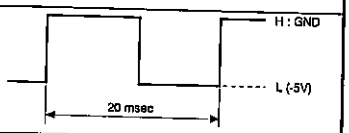
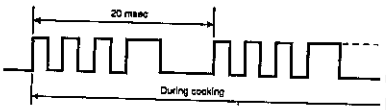
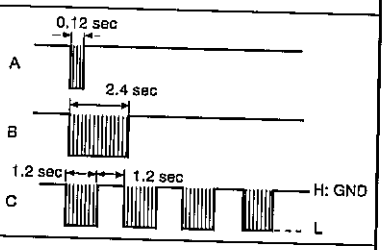
8) Indicator Circuit
Indicator element is a Fluorescent Display.
Basically, a Fluorescent Display is triode having a cathode, a grid and an anode. Usually, the cathode of a Fluorescent Display is directly heated and the filament serves as cathode.
The Fluorescent Display has 7-digits, 15-segments are used for displaying figures.

TOUCH CONTROL PANEL ASSEMBLY

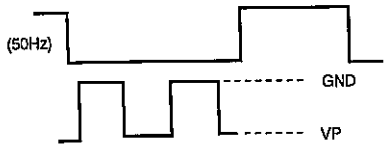
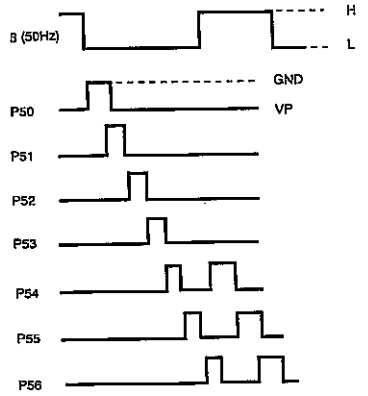
DESCRIPTION OF LSI

LSI(IZA715DR)

The I/O signal of the LSI(IZA715DR) are detailed in the following table.

Pin No.	Signal	I/O	Description
1	VCC	IN	Connected to GND.
2	P90	OUT	**Magnetron high-voltage circuit driving signal.** To turn on and off the cook relay (RY2). In 100% power operation, the signals holds "L" level during microwave cooking and "H" level while not cooking. In other cooking modes (MED HIGH, MED,MED LOW,LOW) the signal turns to "H" level and "L" level in repetition according to the power level. 
3-9	P91-P97	OUT	Terminal not used.
10	AVCC	IN	Connected to GND.
11-14	AN0-AN3	IN	Connected to VC.
15	AN4	IN	**Input signal which communicates the door open/close information to LSI.** Door closed; "H" level signal. Door opend; "L" level signal.
16-18	AN5-AN7	IN	**Heating constant comensation terminal.**
19	AVSS	IN	Connected to VC.
20	TEST	IN	Connected to VC.
21	X2	OUT	Terminal not used.
22	X1	IN	Connected to GND.
23	VSS	IN	**Power source voltage: -5V.** VC voltage of power source circuit input.
24	OSC1	IN	**Internal clock oscillation frequency input setting.** The internal clock frequency is set by inserting the ceramic filter oscillation circuit with respect to OSC1 terminal.
25	OSC2	OUT	**Internal clock oscillation frequency control output.** Output to control oscillation input of OSC2.
26	RST	IN	**Auto clear terminal.** Signal is input to reset the LSI to the initial state when power is applied. Temporarily set to "L" level the moment power is applied, at this time the LSI is reset. Thereafter set at "H" level.
27	P10	IN	**Signal to synchronized LSI with commercial power source frequency(50Hz).** This is basic timing for time processing of LSI. 
28	P11	OUT	**Oven lamp and turntable motor driving signal. (Square Waveform : 50Hz)** To turn on and off shut-off relay (RY1). The square waveform voltage is delivered to the relay (RY1) driving circuit and relays (RY2,RY3,RY4,RY5) control circuit. 
29	P14	OUT	Terminal not used.
30	P15	OUT	**Signal to sound buzzer.** A: key touch sound. B: Completion sound. C: When the temperature of the oven cavity reaches the preset temperature in the preheating mode, or when the preheating hold time (30 minutes) is elapsed. 
31/32	P16/P47	OUT	Terminal not used.

TOUCH CONTROL PANEL ASSEMBLY

Pin No.	Signal	I/O	Description
33	P46	OUT	**Segment data signal.** The relation between signals and indicators are as follows: Signal Segment Signal Segment P46 ..... P1 P60 ..... P9 P45 ..... P2 P61 ..... P10 P44 ..... P3 P62 ..... P11 P43 ..... P4 P63 ..... P12 P42 ..... P5 P64 ..... P13 P41 ..... P6 P65 ..... P14 P40 ..... P7 P66 ..... P15 P57 ..... P8 
34-39	P45-P40	OUT	**Segment data signal.** Signal similar to P46.
40-46	P50-P56	OUT	**Digit selection signal.** The relationship between digit signal and digit are as follows: Digit signal Digit P50 ..... 1st. P51 ..... 2nd. P52 ..... 3rd. P53 ..... 4th. P54 ..... 5th. P55 ..... 6th. P56 ..... 7th. Normally, one pulse is output in every period, and input to the grid of the fluorescent display. 
47	P57	OUT	**Segment data signal.** Signal similar to P46.
48	Vdisp	IN	**Anode (segment) of Fluorescent Display light-up voltage: -28V** Vp voltage of power source circuit input.
49	P60	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G2 line keys on key matrix is touched.
50	P61	OUT	**Segment data signal.** Signal similar to P46.
51	P62	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G4 line keys on key matrix is touched.
52	P63	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G5 line keys on key matrix is touched.
53	P64	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G6 line keys on key matrix is touched.
54	P65	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G7 line keys on key matrix is touched.

TOUCH CONTROL PANEL ASSEMBLY

Pin No.	Signal	I/O	Description
55	P66	OUT	**Segment data signal.** Signal similar to P46. **Key strobe signal.** Signal applied to touch-key section. A pulse signal is input to P70-P73 terminal while one of G8 line keys on key matrix is touched.
56	P67	OUT	Terminal not used.
57	P70	IN	**Signal coming from touch key.** When any one of G9 line keys on key matrix is touched, a corresponding signal from P60, P62-P66 will be input into P70. When no key is touched, the signal is held at "L" level.
58	P71	IN	**Signal similar to P70.** When any one of G10 line keys on key matrix is touched, a corresponding signal will be input into P71.
59	P72	IN	**Signal similar to P70.** When any one of G11 line keys on key matrix is touched, a corresponding signal will be input into P72.
60	P73	IN	**Signal similar to P70.** When any one of G12 line keys on key matrix is touched, a corresponding signal will be input into P73.
61-64	P74-P77	OUT	Terminal not used.

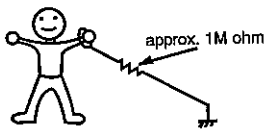
SERVICING

1. Precautions for Handling Electronic Components

This unit uses CMOS LSI in the integral part of the circuits. When handling these parts, the following precautions should be strictly followed. CMOS LSI have extremely high impedance at its input and output terminals. For this reason, it is easily influenced by the surrounding high voltage power source, static electricity charge in clothes, etc. and sometimes it is not fully protected by the built-in protection circuit.

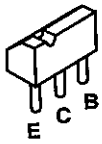
In order to protect CMOS LSI.

1) When storing and transporting, thoroughly wrap them in aluminium foil. Also wrap all PW boards containing them in aluminium foil.
2) When soldering, ground the technician as shown in the figure and use grounded soldering iron and work table.



2. Shapes of Electronic Components

Transistor
DTA123ES
KRA101M
KRA223M
KRC243M



Transistor
2SB910M

3. Servicing of Touch Control Panel

We describe the procedures to permit servicing of the touch control panel of the microwave oven and the precautions you must take when doing so. To perform the servicing, power supply to the touch control panel is available either from the power line of the oven itself or from an external power source.

(1) Servicing the touch control panel with power supply of the oven:

CAUTION:

THE HIGH VOLTAGE TRANSFORMER OF THE MICROWAVE OVEN IS STILL LIVE DURING SERVICING PRESENTS A HAZARD.

Therefore, when checking the performance of the touch control panel, put the outer cabinet on the oven to avoid touching the high voltage transformer, or unplug the primary terminal (connector) of the high voltage transformer to turn it off; and the end of such connector must be insulated with an insulating tape. After servicing, be sure to replace the leads to their original locations.

A. On some models, the power supply cord between the touch control panel and the oven itself is so short that the two can't be separated. For those models, check and repair all the controls (sensor-related ones included) of the touch control panel while keeping it connected to the oven.

B. On some models, the power supply cord between the touch control panel and the oven proper is long enough that they may be separated from each other. For those models, therefore, it is possible to check and repair the controls of the touch control panel while keeping it apart from the oven proper; in this case you must short both ends of the door sensing switch (on PWB) of the touch control panel with a jumper, which brings about an operational state that is equivalent to the oven door being closed. As for the sensor-related controls of the touch control panel, checking them is possible if dummy resistor(s) with resistance is equal to that of the controls are used.

(2) Servicing the touch control panel with power supply from an external power source:

Disconnect the touch control panel completely from the oven proper, and short both ends of the door sensing switch (on PWB) of the touch control panel, which brings about an operational state that is equivalent to the oven door being closed. Connect an external power source to the power input terminal of the touch control panel, then it is possible to check and repair the controls of the touch control panel it is also possible to check the sensor-related controls of the touch control panel by using the dummy resistor(s).

4. Servicing Tools

Tools required to service the touch control panel assembly.

1) Soldering iron: 30W
   (It is recommended to use a soldering iron with a grounding terminal.)
2) Oscilloscope: Single beam, frequency range: DC-10MHz type or more advanced model.
3) Others: Hand tools

5. Other Precautions

1) Before turning on the power source of the control unit, remove the aluminium foil applied for preventing static electricity.
2) Connect the connectors of the key unit to the control unit being sure that the lead wires are not twisted.
3) After aluminium foil is removed, be careful that abnormal voltage due to static electricity etc. is not applied to the input or output terminals.
4) Attach connectors, electrolytic capacitors, etc. to PWB, making sure that all connections are tight.
5) Be sure to use specified components where high precision is required.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

WARNING: Avoid possible exposure to microwave energy. Please follow the instructions below before operating the oven.

1. CARRY OUT 3D CHECKS.
2. Make sure that a definite "click" can be heard when the microwave oven door is unlatched. (Hold the door in a closed position with one hand, then push the door open button with the other, this causes the latch heads to rise, it is then possible to hear a "click" as the door switches operate.)
3. Visually check the door and cavity face plate for damage (dents, cracks, signs of arcing etc.).

Carry out any remedial work that is necessary before operating the oven.
Do not operate the oven if any of the following conditions exist;
1. Door does not close firmly.
2. Door hinge, support or latch hook is damaged.
3. The door gasket or seal is damaged.
4. The door is bent or warped.
5. There are defective parts in the door interlock system.
6. There are defective parts in the microwave generating and transmission assembly.
7. There is visible damage to the oven.

Do not operate the oven:
1. Without the RF gasket (Magnetron).
2. If the wave guide or oven cavity are not intact.
3. If the door is not closed.
4. If the outer case (cabinet) is not fitted.

Please refer to 'OVEN PARTS, CABINET PARTS, DOOR PARTS', when carrying out any of the following removal procedures:

OUTER CASE REMOVAL

To remove the outer case, proceed as follows.
1. Disconnect oven from power supply.
2. Open the oven door and wedge it open.
3. Remove the screws from rear and along the side edge of case.
4. Slide the entire case back about 3cm to free it from retaining clips on the cavity face plate.
5. Lift the entire case from the oven.
6. Discharge the H.V. capacitor before carrying out any further work.
7. Do not operate the oven with the outer case removed.

N.B.; Step 1, 2 and 6 form the basis of the 3D checks.

CAUTION: DISCHARGE HIGH VOLTAGE CAPACITOR BEFORE TOUCHING ANY OVEN COMPONENTS OR WIRING.

HIGH VOLTAGE COMPONENTS REMOVAL (HIGH VOLTAGE CAPACITOR AND HIGH VOLTAGE RECTIFIER)

To remove the components, proceed as follows.
1. CARRY OUT 3D CHECKS
2. Disconnect the leads of the high voltage rectifier from high voltage rectifier capacitor.
3. Remove one (1) screw holding earth side terminal of high voltage rectifier, and remove capacitor holder from the base plate.
4. Remove the capacitor from the capacitor holder.
5. Now high voltage rectifier and capacitor should be free.

CAUTION: WHEN REPLACING HIGH VOLTAGE RECTIFIER, ENSURE THAT THE CATHODE (EARTH) CONNECTION IS SECURELY FIXED TO THE CAPACITOR HOLDER WITH AN EARTHING SCREW.

POWER TRANSFORMER REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the H.V. wire B and filament lead of the transformer from the magnetron.
3. Disconnect HV wire from the transformer.
4. Remove 4 screws from the base plate.
5. Remove the transformer.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

MAGNETRON REMOVAL

1. CARRY OUT 3D CHECKS.
2. Disconnect the H.V. wire B and filament lead of the transformer from the magnetron.
3. Remove the chassis support screw and the screw holding the chassis support to the magnetron.
4. Move the air intake duct to the left.
5. Carefully remove two (2) screws holding magnetron to waveguide.
6. Remove the magnetron from the waveguide with care so that the magnetron antenna is not hit by any metal object around the antenna.

CAUTION: WHEN REPLACING THE MAGNETRON, BE SURE THE R.F. GASKET IS IN PLACE AND THE MAGNETRON SCREWS ARE TIGHTENED SECURELY.

FAN MOTOR REMOVAL

1. Remove the fan motor wires (2).
2. Remove two (2) fan motor screws, holding the motor to the oven cavity.
3. Now the fan motor is free.

CONTROL PANEL REMOVAL

1. CARRY OUT 3D CHECKS
2. Disconnect the main harness and stop switch harness from the control panel.
3. Remove the one (1) screw holding the control panel to the oven cavity.
4. Lift up the control panel assembly and pull it forward. Now, the control panel assembly is free.

TURNTABLE MOTOR REMOVAL

1. Disconnect the oven from power supply.
2. Remove the turntable motor cover by snipping of material in four corners.
3. Where the corners have been snipped off bend corner areas flat. No sharp edge must be evident after removal of TT motor cover.
4. Disconnect the wire lead from turntable motor and remove the one (1) screw holding the turntable motor.
5. Turntable is now free.
6. After replacement use the one (1) screw provided with the turntable motor assembly to fit the turntable motor cover.

OVEN LAMP SOCKET REMOVAL

1. CARRY OUT 3D CHECKS
2. Unlock the terminals from the oven lamp socket and remove wires.
3. Lift up the oven lamp socket, unclipping from air intake duct.
4. Now, the oven lamp socket is free.

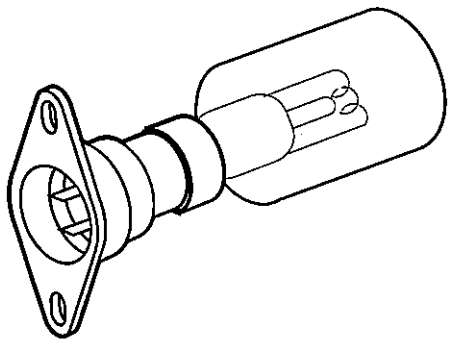


Figure C-2. Oven lamp socket

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

POWER SUPPLY CORD REPLACEMENT

Removal

1. CARRY OUT 3D CHECKS.
2. Remove the single (1) screw holding the green/yellow wire to the cavity.
3. Disconnect the leads of the power supply cord from the noise filter, referring to the Figure C-3 (a).
4. Release the power supply cord from the rear cabinet.
5. Now the power supply cord is free.

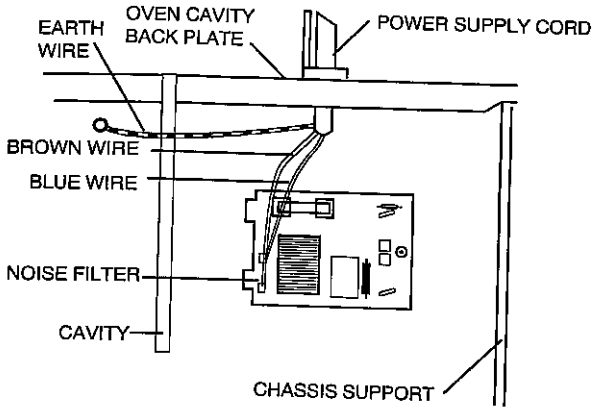


Figure C-3 (a) Replacement of Power Supply Cord

Re-install

1. Insert the moulded cord stopper of power supply cord into the square hole of the rear cabinet, referring to the Figure C-3 (b). Installation of Power supply cord.
2. Install the earth wire lead of power supply cord to the cavity with one (1) screw and one (1) 'nyloc' nut.
3. Connect the brown and blue wire leads of power supply cord to the noise filter correctly, referring to the Pictorial Diagram.

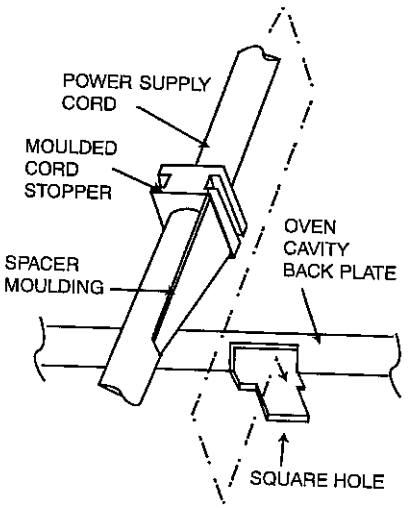


Figure C-3 (b) Replacement of Power Supply Cord

MONITORED LATCH SWITCH, STOP SWITCH AND MONITOR SWITCH REMOVAL

1. CARRY OUT 3D CHECKS.
2. Remove the control panel assembly referring to "CONTROL PANEL REMOVAL".
3. Disconnect the leads from all switches.
4. Remove one (1) screw holding the latch hook to the oven cavity.
5. Remove the latch hook.
6. Push the retaining tab slightly and remove the switch.

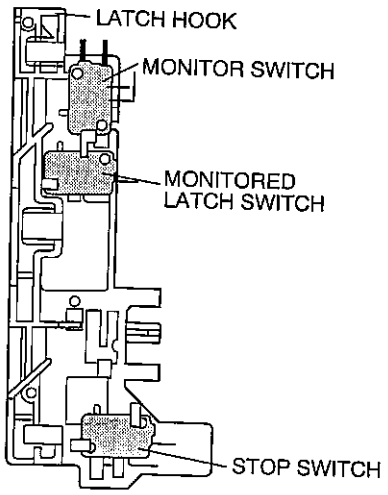


Figure C-4. Switches

LATCH HEAD REMOVAL

1. Insert an iron plate (thickness of about 0.5mm)
2. Release the latch spring from the tabs of the door panel.
3. Release the latch spring from the latch head.
4. Release the latch head from the door panel.
5. Now, the latch head is free.

DOOR FRAME REMOVAL

Remove the door assembly, referring to from item 1 through item 4 of "DOOR REPLACEMENT".

1. Place the door assembly on a soft cloth facing up.
2. Remove the choke cover referring to "CHOKE COVER REMOVAL".
3. Remove four (4) screws.
4. Release the door frame from the door panel assembly, now the door frame is free.

COMPONENT REPLACEMENT AND ADJUSTMENT PROCEDURE

DOOR REPLACEMENT

1. CARRY OUT 3D CHECKS
2. Remove choke cover taking care not to break clips.
3. Remove door assembly by lifting and easing it forward.
4. On re-installation make sure the door is parallel with the bottom line of the oven face plate and the latch head passes through the latch holes correctly.
5. CARRY OUT 4R CHECKS

NOTE: After any service to the door, the approved microwave survey meter should be used to assure in compliance with proper microwave radiation standards. (Refer to Microwave Measurement Procedure).

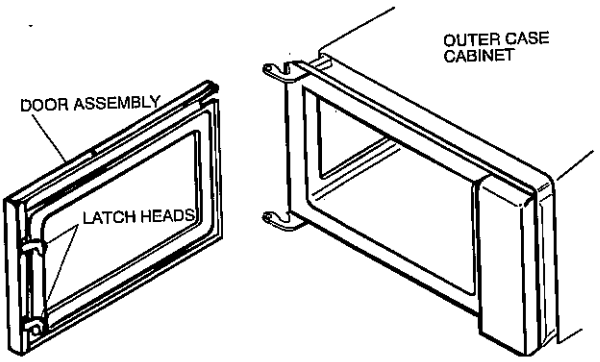


Figure C-5. Door Assembly Replacement and Adjustment

CHOKE COVER REMOVAL

1. Insert an iron plate (thickness of about 0.5mm) or flat type screw driver to the gap between the choke cover and door panel as shown figure to free the engaged part. The protect sheet may be used not to damage the door panel.
2. Lift up the choke cover, now choke cover is free.

LATCH HEAD REMOVAL

1. Remove the choke as above.
2. Unhook the spring and lift the latch head clear.
3. Replacement, reverse of above.

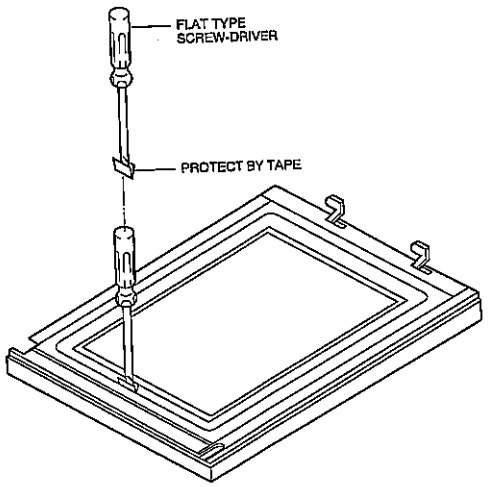


Figure C-6. Choke Cover Removal

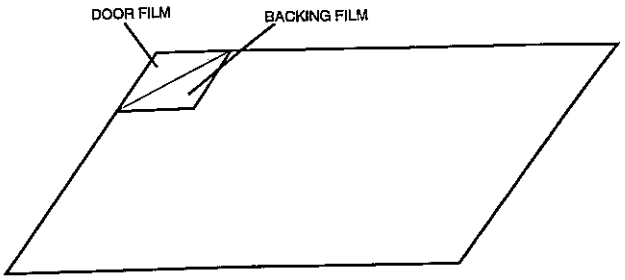
INNER DOOR FILM

Removal

1. Tear the door film from the door assembly.
2. Now, the door film is free.

Installation

1. Tear away the backing film.
2. Put the adhesive side of the door film on the door assembly.



OUTER DOOR FILM

Removal

1. Remove the door film from the clips on the door frame.

Installation

1. Attach the door film to the clips on the door frame.

MICROWAVE MEASUREMENT

After adjustment of door latch switches, monitor switch and door are completed individually or collectively, the following leakage test must be performed with a survey instrument and it must be confirmed that the result meets the requirements of the performance standard for microwave oven.

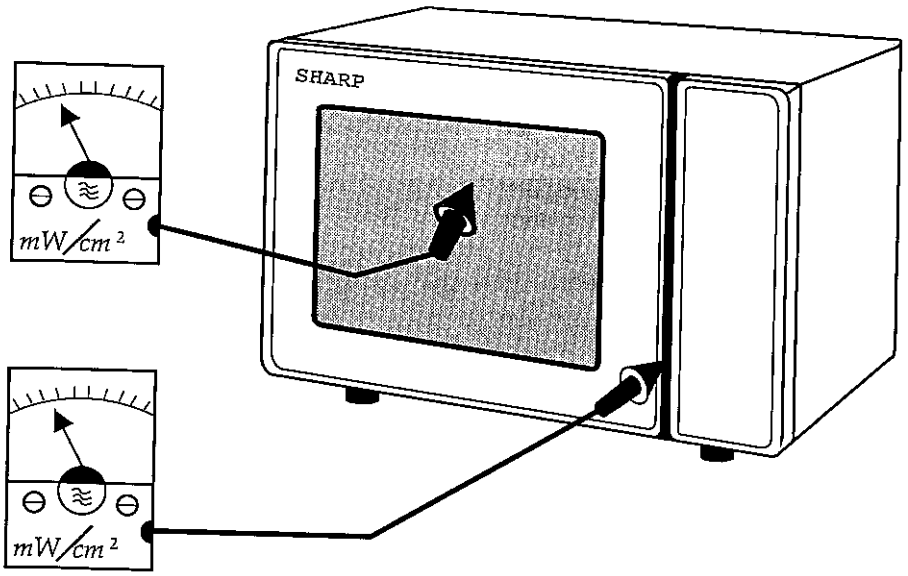
REQUIREMENT

The safety switch must prevent microwave radiation emission in excess of 5mW/cm2 at any point 5cm or more from external surface of the oven.

PREPARATION FOR TESTING:

Before beginning the actual test for leakage, proceed as follows;

1. Make sure that the test instrument is operating normally as specified in its instruction booklet.
   Important:
   Survey instruments that comply with the requirement for instrumentations as prescribed by the performance standard for microwave ovens must be used for testing.
   Recommended instruments are:
   NARDA 8100
   NARDA 8200
   HOLADAY HI 1500
   SIMPSON 380M
2. Place the oven tray into the oven cavity.
3. Place the load of 275 ± 15ml of water initially at 20 ± 5°C in the center of the oven tray. The water container should be a low form of 600 ml beaker with inside diameter of approx. 8.5cm and made of an electrically non-conductive material such as glass or plastic.
   The placing of this standard load in the oven is important not only to protect the oven, but also to insure that any leakage is measured accurately.
4. Close the door and turn the oven ON with the timer set for several minutes. If the water begins to boil before the survey is completed, replace it with 275ml of cool water.
5. Move the probe slowly (not faster than2.5cm/sec.) along the gap.
6. The microwave radiation emission should be measured at any point of 5cm or more from the external surface of the oven.



Microwave leakage measurement at 5 cm distance

TEST DATA AT A GLANCE

TEST DATA AT A GLANCE

Parts	Symbol	Value / Data
Fuse	F	F8A 250V
Thermal cut-out (OVEN)	TC2	125°C
Oven lamp	OL	240-250 V 25W E14
High voltage capacitor	C	0.94μF AC 2100V
Magnetron	MG	Filament < 1Ω Filament – chassis ∞ ohm.
Power transformer	T	Filament winding < 1Ω Secondary winding Approx. 114Ω Primary winding Approx. 2.3Ω

TEST POINT ON CONTROL UNIT

	In/Out put terminal	Test Point	Resistance (Disconnect the Volt power plug and close the door.)
Input terminal (Power supply)	A3–A5	230V	Approx. 966 ohm.
Input terminal (Stop switch)	B1–B2	–	0 ohm.
Output terminal (Oven lamp, Fan motor, Turntable motor)	A3–A1	230V	Approx. 95 ohm.
Output terminal (Power transformer)	A3–NO. of RY2	230V	Approx. 1.8 ohm.
Output terminal (Earth)	B2–Chassis	–	0 ohm.

WARNING: DISCONNECT THE PLUG WHEN MEASURING RESISTANCE.

WIRING/RE-WIRING

WARNING: WIRING / RE-WIRING.
Before carrying out any work; carry out 3D checks.
1. Disconnect the supply
2. Open the door and wedge open.
3. Discharge the high voltage capacitor.

RE-WIRING.
Ensure the following:
1. Wires must not touch:
   a) High voltage parts.
   (Magnetron, high voltage transformer, high voltage capacitor and high voltage rectifier).

   b) Parts that become hot.
   (Heating elements, oven lamp, oven cavity magnetron and high voltage transformer).

   c) Sharp edges.
   (Bottom plates, oven cavity, waveguide flange, chassis support and other metallic parts).

   d) Movable parts.
   (Fan blade, any motor, switch, switch lever and open button).

2. Positive lock connectors are fitted correctly. Ensure the locking pin is located correctly.
3. Wires are connected correctly as per pictorial diagram.
4. No wire leads are trapped by the outer wrap.

WIRING DIAGRAM

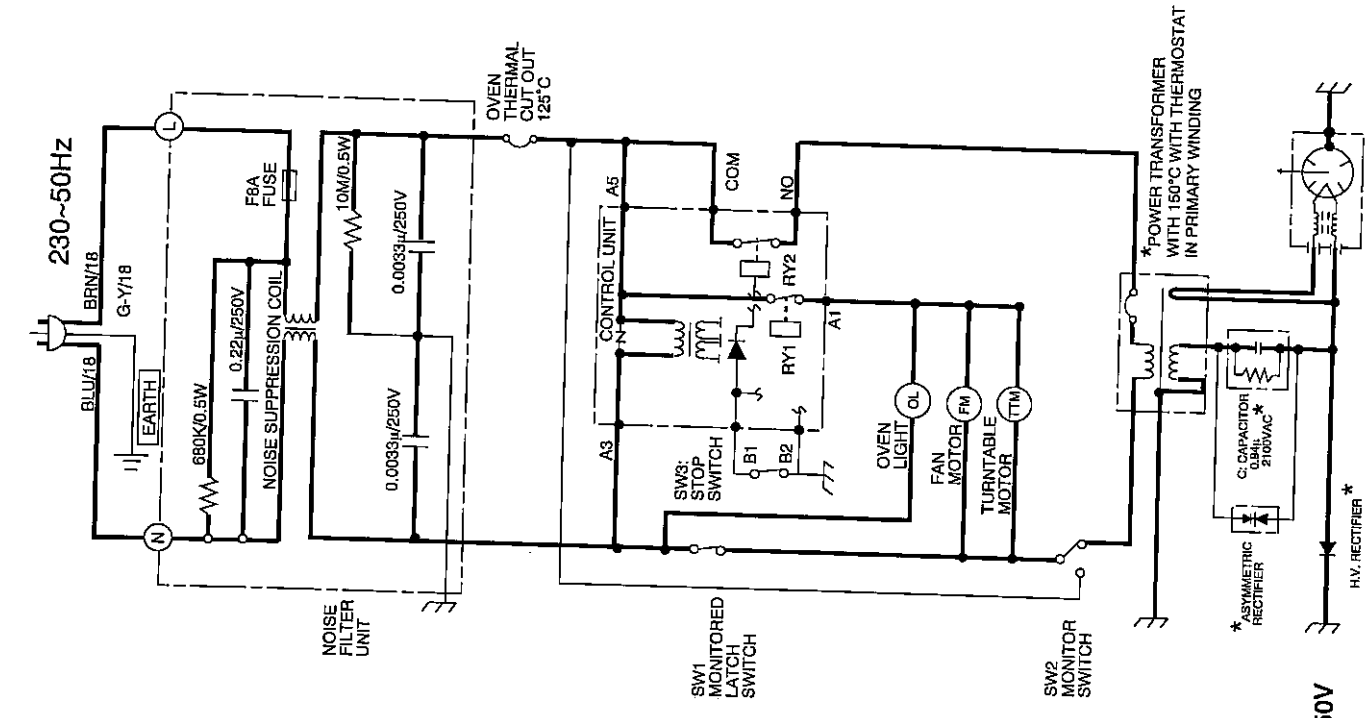


Figure 0-1 Oven Schematic-ON Condition Door Closed

Note : * Components with Potentials above 250V

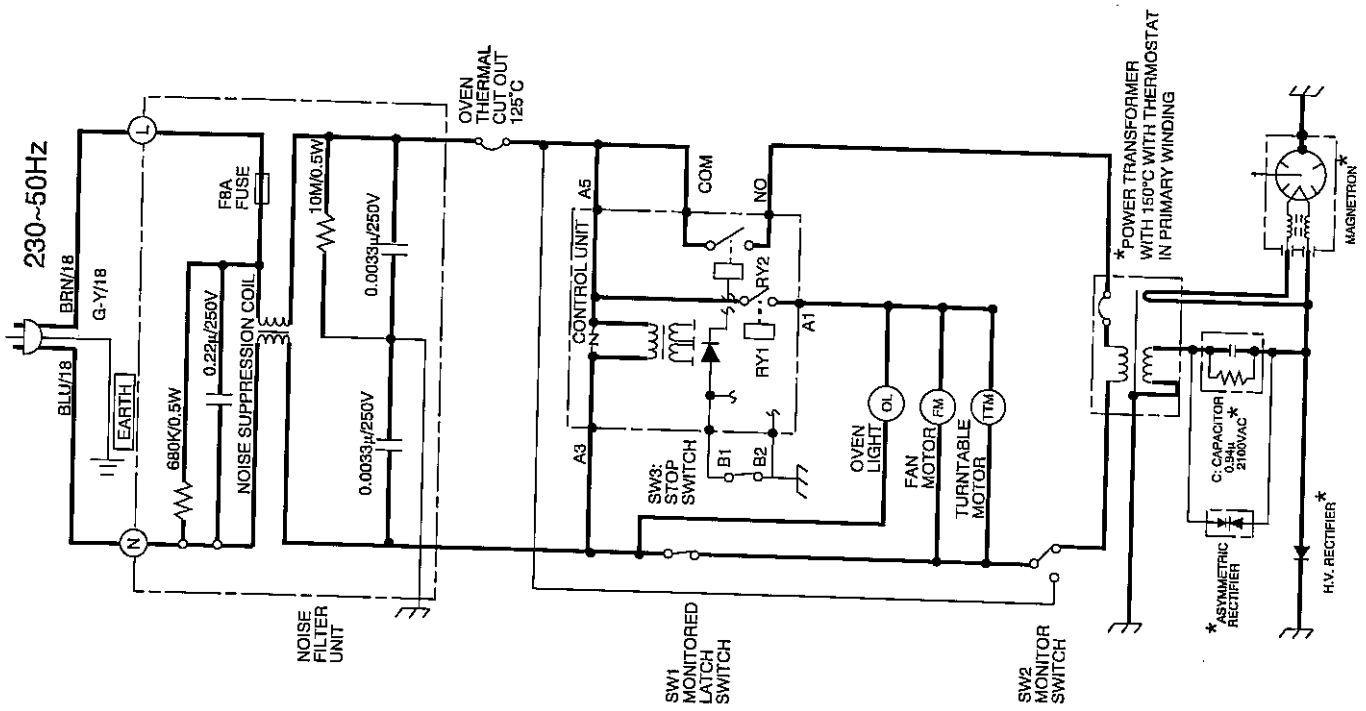


Figure 0-2 Oven Schematic-OFF Condition Door Closed

WIRING DIAGRAM

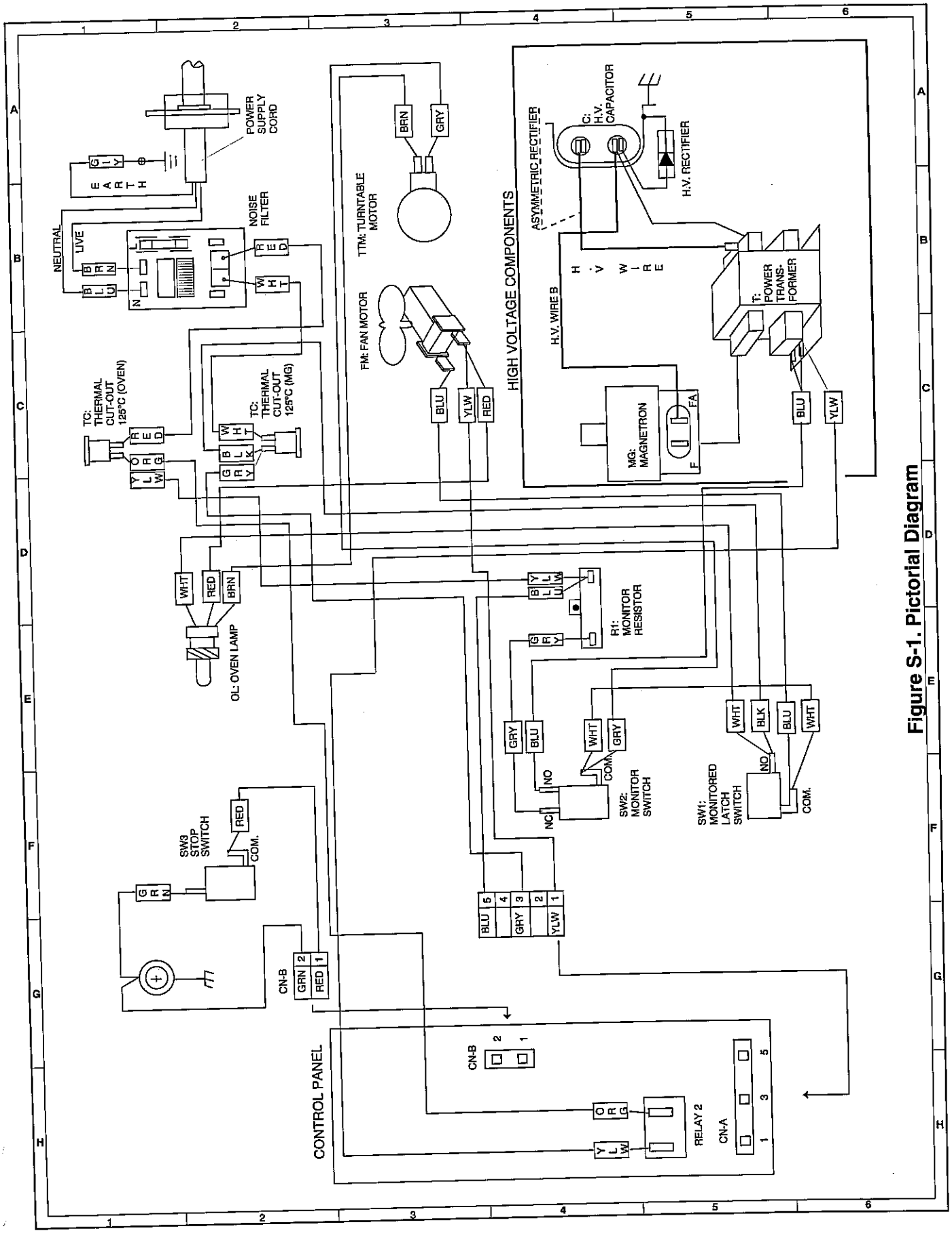


Figure S-1. Pictorial Diagram

WIRING DIAGRAM

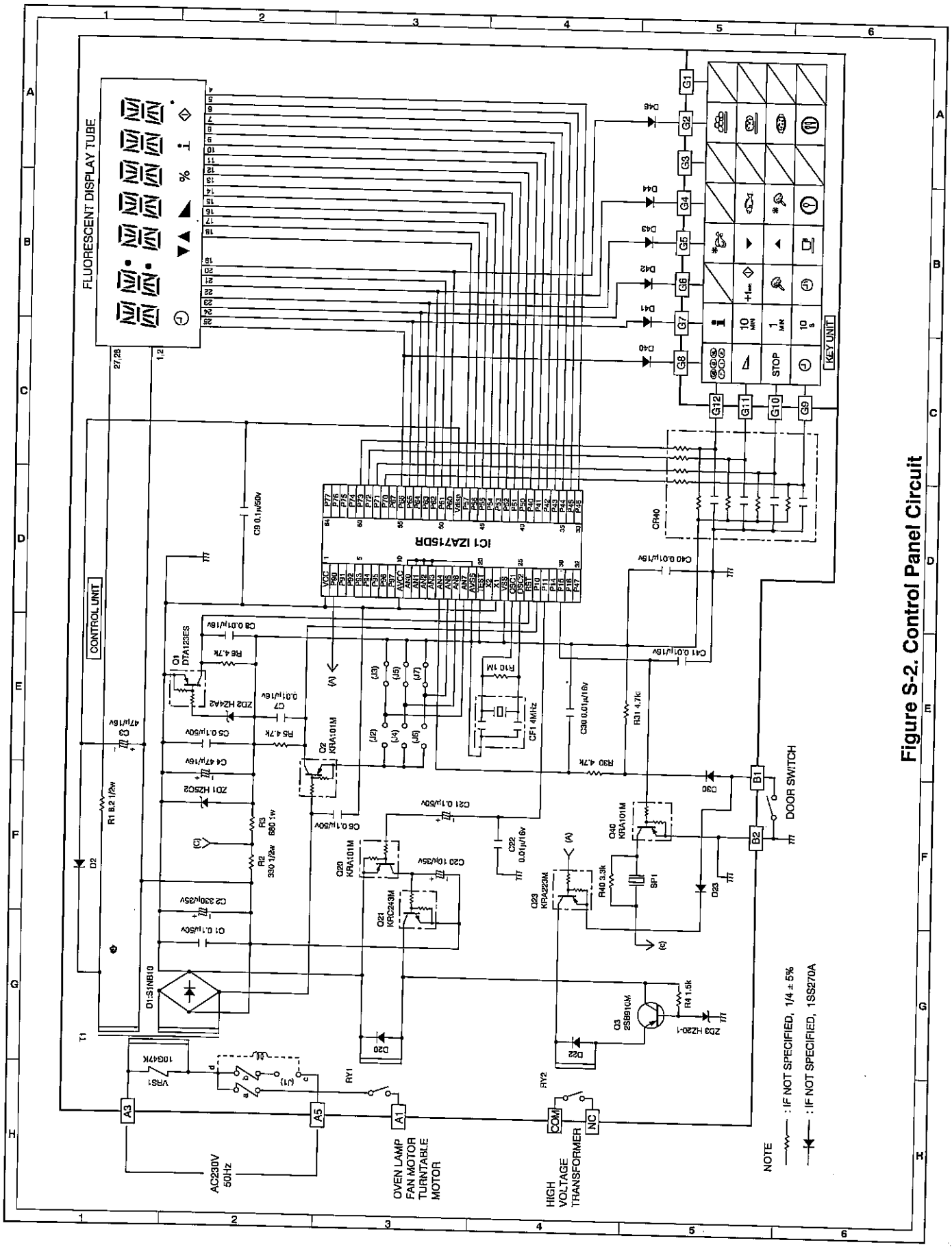


Figure S-2. Control Panel Circuit

WIRING DIAGRAM

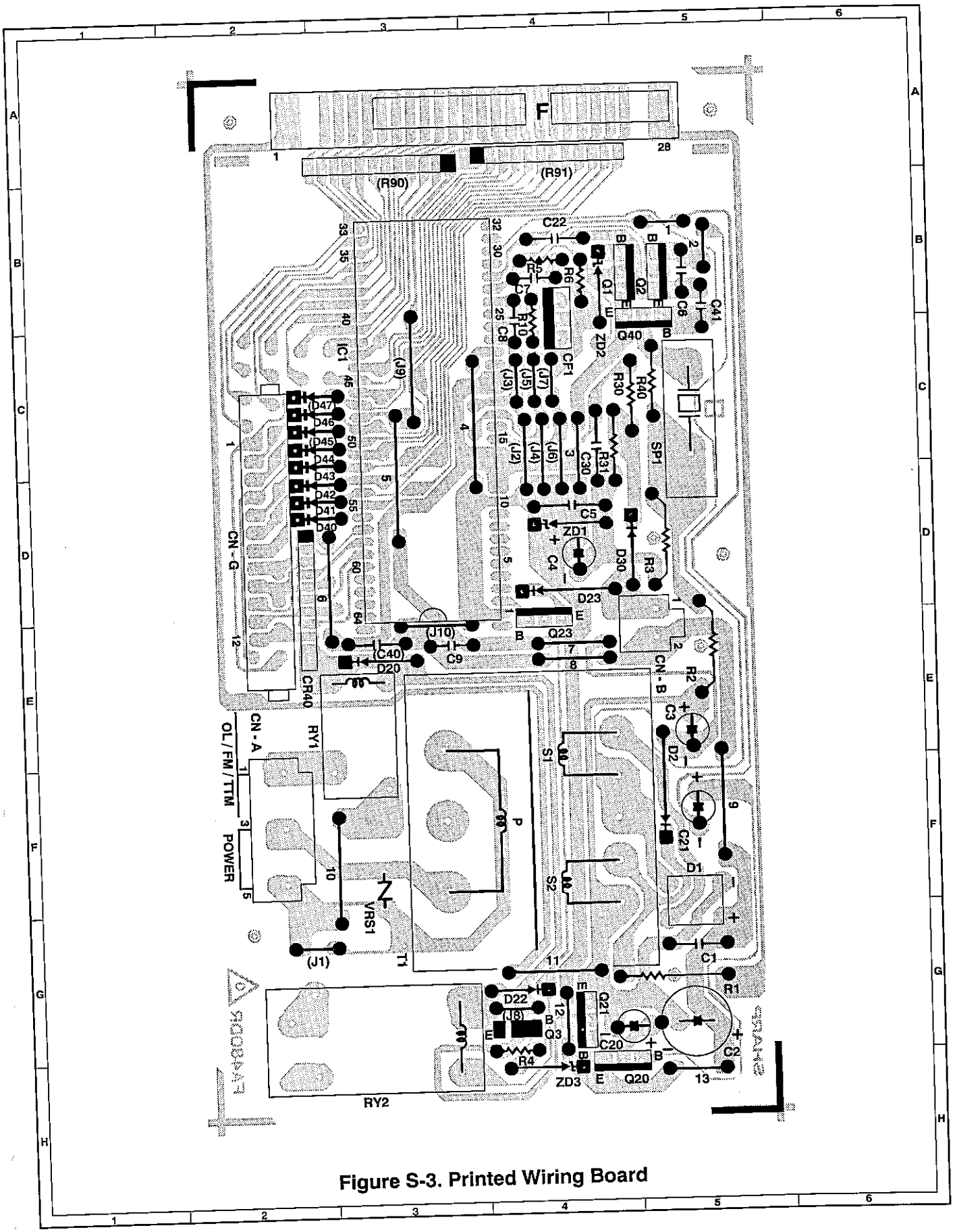


Figure S-3. Printed Wiring Board

PARTS LIST

Note: The parts marked "*" are used in voltage more than 250V. The parts marked Δ may cause undue microwave exposure
"§" MARK: SPARE PARTS-DELIVERY SECTION

ELECTRIC PARTS

	REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE	
*	1-1	RH-DZA008WRE0	U	H.V. rectifier	1	AM	*
*	1-2	RC-QZA220WRE0	U	High voltage capacitor	1	AT	*
	1-3	QSW-MA112WRE0	J	Monitor switch	1	AN	
	1-4	QSW-MA110WRE0	J	Monitored latch switch	1	AK	
	1-5	QSW-MA110WRE0	J	Stop switch	1	AK	
	1-6	FPWBFA308WRE0	U	Noise filter	1	AQ	
	1-7	QFS-CA024WRE0	U	Fuse F8A	1	AC	
	1-11	RTHM-A078WRE0	U	Thermal cut-out 125°C (Oven)	1	AL	
	1-13	QACCVA006URE0	U	Power supply cord	1	AL	
	1-14	RMOTEA339WRE1	U	Fan motor	1	AU	
	1-15	RV-MZA270WRE0	U	Magnetron	1	BG	*Δ
	1-16	RLMPTA066WRE0	U	Oven lamp/Socket	1	AK	
	1-17	FMOTDA056WRK0	J	Turntable motor assy	1	AR	
	1-18	RTRN-A005URE0	U	Power transformer	1	BH	

CABINET PARTS

	REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE	
Δ	2-1	GCABUA001URP0	U	Outer case cabinet (B)	1	AT	Δ
Δ	2-1	GCABUA573WRT0	U	Outer case cabinet (W)	1	AT	Δ
	2-2	GLEGPA057WRE0	U	Foot	2	AB	

CONTROL PANEL PARTS

REF. NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
3- 1	DPWBFA019URU0	U	Control unit	1	BQ
3- 1A	QCNCMA234DRE0	U	3-pin connector (CN-A)	1	AB
3- 1B	QCNCMA275DRE0	U	2-pin connector (CN-B)	1	AB
3- 1C	QCNCWA057DRE0	U	12-pin connector (CN-G)	1	AE
3- 1D	RV-KXA073DRE0	U	Fluorescent display tube	1	AW
3- 1E	PCUSGA381WRP0	U	Cushion	2	AB
C1	VCKYD11HF104Z	U	Capacitor 0.1 uF 50V	1	AA
C2	VCEAB31VW337M	U	Capacitor 330 uF 35V	1	AC
C3-4	VCEAB31CW476M	U	Capacitor 47 uF 16V	2	AA
C5-6	VCKYD11HF104Z	U	Capacitor 0.1 uF 50V	2	AA
C7-8	VCKYD11CY103N	U	Capacitor 0.01 uF 16V	2	AA
C9	VCKYD11HF104Z	U	Capacitor 0.1 uF 50V	1	AA
C20	VCEAB31VW106M	U	Capacitor 10 uF 35V	1	AB
C21	VCEAB31HW104M	U	Capacitor 0.1 uF 50V	1	AA
C22	VCKYD11CY103N	U	Capacitor 0.01 uF 16V	1	AA
C30	VCKYD11CY103N	U	Capacitor 0.01 uF 16V	1	AA
C40-41	VCKYD11CY103N	U	Capacitor 0.01 uF 16V	2	AA
CR40	RMPTEA011DRE0	U	Capacitor array	1	AG
CF1	RCRS-A012DRE0	U	Ceramic resonator (CST4.00MGW)	1	AD
D1	RSRCDA013DRE0	U	Diode bridge (S1NB10)	1	AE
D2	VHD1SS270A/-1	U	Diode (1SS270A)	1	AA
D20	VHD1SS270A/-1	U	Diode (1SS270A)	1	AA
D22-23	VHD1SS270A/-1	U	Diode (1SS270A)	2	AA
D30	VHD1SS270A/-1	U	Diode (1SS270A)	1	AA
D40-44	VHD1SS270A/-1	U	Diode (1SS270A)	5	AA
D46	VHD1SS270A/-1	U	Diode (1SS270A)	1	AA
IC1	RH-IZA715DRE0	J	LSI	1	BA
Q1	VSDTA123ES/-3	U	Transistor (DTA123ES)	1	AB
Q2	VSKRA101M//-3	U	Transistor (KRA101M)	1	AA
Q3	VS2SB1238//-3	U	Transistor (2SB1238)	1	AD
Q20	VSKRA101M//-3	U	Transistor (KRA101M)	1	AA
Q21	VSKRC243M//-3	U	Transistor (KRC243M)	1	AB
Q23	VSKRA223M//-3	U	Transistor (KRA223M)	1	AB
Q40	VSKRA101M//-3	U	Transistor (KRA101M)	1	AA

PARTS LIST

Note: The parts marked "*" are used in voltage more than 250V. The parts marked Δ may cause undue microwave exposure
"§" MARK: SPARE PARTS-DELIVERY SECTION

CONTROL PANEL PARTS (CONTINUED)

REF NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
R1	VRD-B12HF8R2J	U	Resistor 8.2 ohm 1/2W	1	AA
R2	VRD-B12HF331J	U	Resistor 330 ohm 1/2W	1	AA
R3	VRS-B13AA681J	U	Resistor 680 ohm 1W	1	AB
R4	VRD-B12EF152J	U	Resistor 1.5k ohm 1/4W	1	AA
R5-6	VRD-B12EF472J	U	Resistor 4.7k ohm 1/4W	2	AA
R10	VRD-B12EF105J	U	Resistor 1M ohm 1/4W	1	AA
R30-31	VRD-B12EF472J	U	Resistor 4.7k ohm 1/4W	2	AA
R40	VRD-B12EF332J	U	Resistor 3.3k ohm 1/4W	1	AA
RY1	RRLY-A080DRE0	U	Relay (OJ-SH-124LM)	1	AG
RY2	RRLY-A092DRE0	U	Relay (VRB18SP)	1	AP
SP1	RALM-A014DRE0	U	Buzzer (PKM22EPT-THAI)	1	AG
T1	RTRNPA098DRE0	U	Transformer	1	AS
VRS1	RH-VZA034DRE0	U	Varistor (10G471K)	1	AC
ZD1	VHEHZ5C2///-1	U	Zener diode (HZ5C-2)	1	AB
ZD2	VHEHZ4A2///-1	U	Zener diode (HZ4A2)	1	AB
ZD3	VHEHZ20///-1	U	Zener diode (HZ20-1)	1	AB
3- 2	DUNTKC018URK0	U	Key unit assembly [R-250A(B)]	1	AW
3- 2	DUNTKC019URK0	U	Key unit assembly [R-250A(W)]	1	AW
3- 2-1	FUNTKC020URE0	U	Key unit [R-250A(B)]	1	AT
3- 2-1	FUNTKC021URE0	U	Key unit [R-250A(W)]	1	AT
3- 3	GMADIA002URF0	U	Display window	1	AH
3- 4	HPNLCA001URF1	U	Control panel frame [R-250A(B)]	1	AP
3- 4	HPNLCA002URF1	U	Control panel frame [R-250A(W)]	1	AP
3- 5	JBTN-A001URF0	U	Open button [R-250A(B)]	1	AE
3- 5	JBTN-B009WRF0	U	Open button [R-250A(W)]	1	AE
3- 6	MSPRCA045WRE0	U	Open button spring	1	AA
3- 7	XEPSD30P10XS0	U	Screw; 3mm x 10mm	2	AA

OVEN PARTS

REF NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE
4-1	DOVN-A005URT0	U	Oven cavity	1	BA
4-2	GDAI-A280WRP1	U	Base plate	1	AQ
4-3	LBNDKA111WRP0	U	Capacitor holder	1	AD
4-4	PHOK-A092WRF4	U	Latch hook	1	AH
4-5	MLEVFA078WRF0	U	Open lever	1	AE
4-6	PDUC-A638WRF1	U	Fan duct	1	AM
4-7	NFANJA029WRE0	U	Fan blade	1	AM
4-8	LANGFA169WRP4	U	Chassis support	1	AE
4-9	PPACGA126WRE0	U	Packing	1	AC
4-10	PCOVPA309WRE0	U	Waveguide cover	1	AC
4-11	PDUC-A581WRF2	U	Air intake duct	1	AE
4-12	PCUSGA308WRP0	U	HVT cushion	2	AA
4-13	PSPAGA001WRE0	U	Vibration Proof Cushion	1	AA

PARTS LIST

Note: The parts marked "*" are used in voltage more than 250V. The parts marked Δ may cause undue microwave exposure
"§" MARK: SPARE PARTS-DELIVERY SECTION

DOOR PARTS

	REF NO.	PART NO.	§	DESCRIPTION	Q'TY	CODE	
Δ	5	CDORFA001URK0	U	Door assembly (B)	1	BB	Δ
Δ	5	CDORFA002URK0	U	Door assembly (W)	1	BB	Δ
	5-1	FDORFA299WRT0	U	Door panel assembly	1	AU	
Δ	5-2	GCOVHA366WRF0	U	Choke cover	1	AG	Δ
	5-3	GWAKPA001URR0	U	Door frame (B)	1	AP	
	5-3	GWAKPA002URR0	U	Door frame (W)	1	AP	
	5-4	PSHEPA560WRE0	U	Outer sealer film	1	AE	
	5-5	LSTPPA158WRF0	U	Latch head	1	AD	
	5-6	MSPRTA141WRE0	U	Latch spring	1	AA	
	5-7	PSHEPA482WRE0	U	Inner Sealer film	1	AH	
	5-8	XEBSD30P06000	U	Door Frame screw	4	AA	

FASTENERS

REF NO.	PART NO.	§	DESCRIPTION	QTY	CODE
7-1	XOTSD40P12RV0	J	Screw 4mm x 12mm	12	AA
7-2	XHTSD40P08RV0	J	Screw 4mm x 8mm	7	AA
7-3	XHPSD40P08K00	U	Noise unit screw	1	AA
7-5	LX-CZA063WRE0	J	HVT screw	4	AA
7-6	XCPSD30P06000	U	Thermo cut out screw	2	AA
7-7	XFPSD40P06000	J	TTM screw	1	AA
7-8	XOTSD40P10000	J	Air duct screw	2	AA
7-9	XEPSD30P10XS0	U	Control panel screw	2	AA
7-10	XOTSE40P12000	J	O/Wrap screw (W)	2	AA
7-10	XOTSF40P12000	J	O/Wrap screw (B)	2	AA
7-12	LX-CZA030WRE0	J	TTM cover screw (not shown in illustration)	1	AA
7-13	LX-NZA026WRE0	U	Nylock nut	1	AA

MISCELLANEOUS

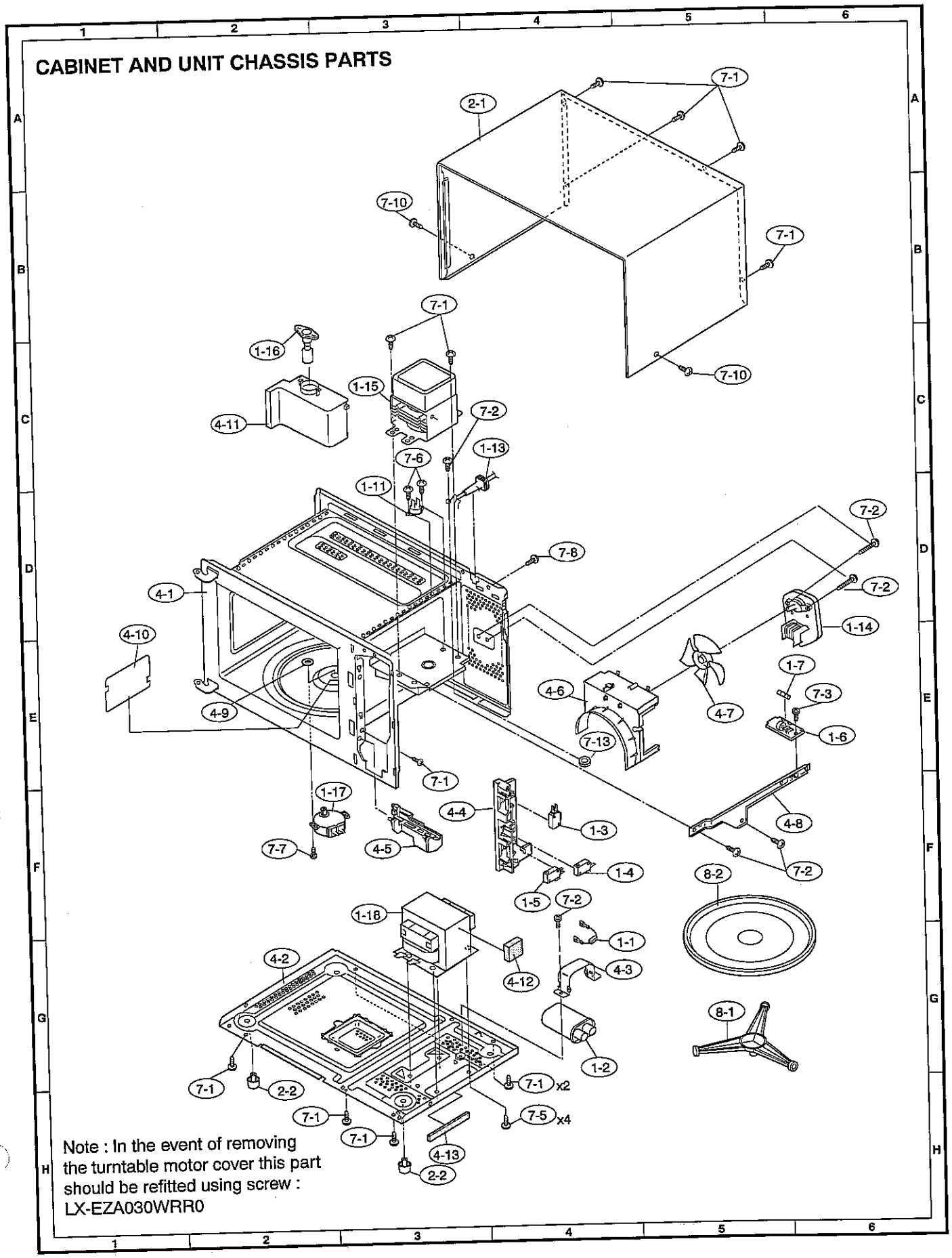
	REF NO.	PART NO.	§	DESCRIPTION	QTY	CODE	
	8-1	FROLPA070WRK1	U	Roller stay	1	AN	
	8-2	NTNT-A060WRE0	U	Turntable	1	AN	
	8-3	TINS-A038URR0	U	Operation Manual/Cookery book	1	AM	
*	8-4	QW-QZA191WRE0	U	H.V. wire A	1	AF	*
*	8-5	QW-QZA001URE0	U	H.V. wire B	1	AE	*
	8-6	FW-VZA028URE0	U	Main wire harness	1	AR	
	8-7	TCAUHA210WRR1	U	Caution label	1	AD	

HOW TO ORDER REPLACEMENT PARTS

To have your order filled promptly and correctly, please furnish the following information.

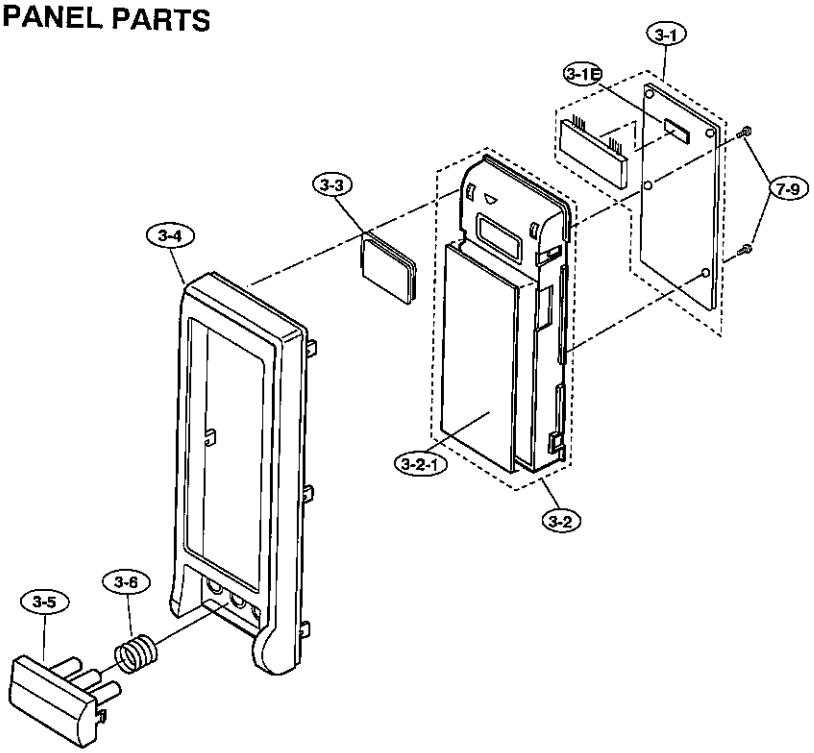
1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

CABINET AND UNIT CHASSIS PARTS

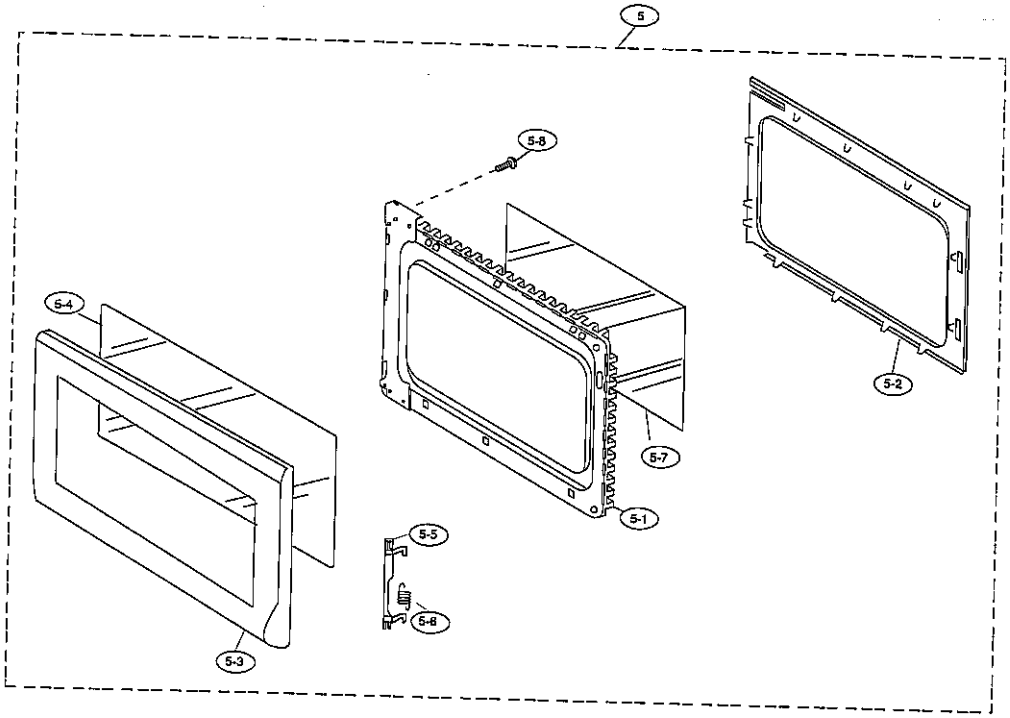


CONTROL PANEL / DOOR PARTS

CONTROL PANEL PARTS

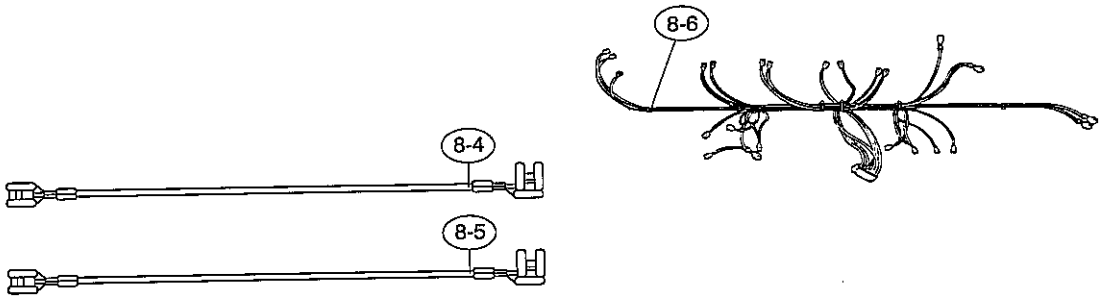


DOOR PARTS

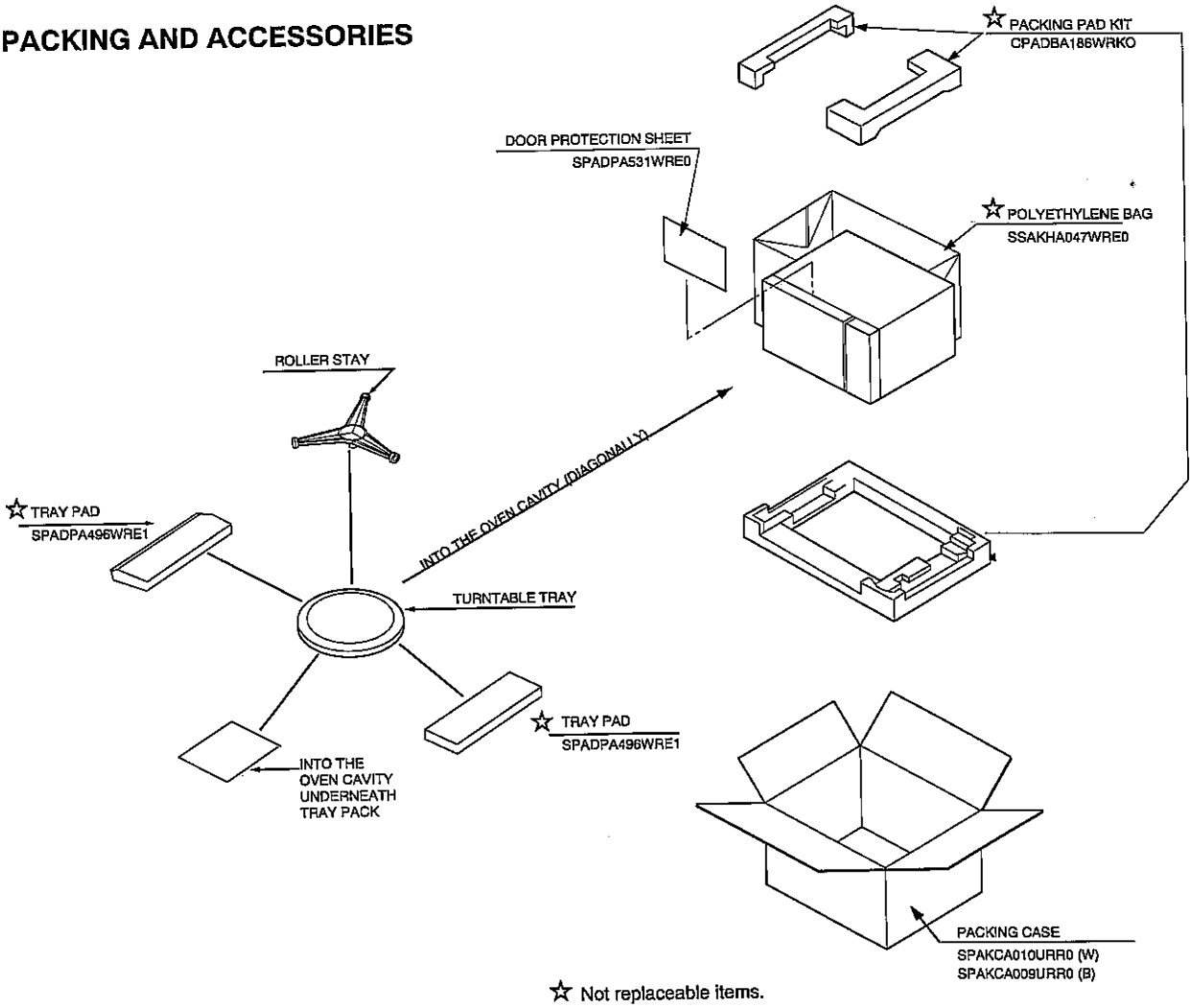


PACKING & ACCESSORIES

MISCELLANEOUS



PACKING AND ACCESSORIES



☆ Not replaceable items.

NOTES

NOTES

SHARP®

'97 SHARP CORP Printed in UK